DOCUMENT RESUME

ED 040 101 95 SO 000 030

AUTHOR	Wiggins, Suzanne
TITLE	ECON 12: Student Materials. Units I and II.
INSTITUTION	San Jose State Coll., Calif.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO	BR-5-1113
PUB DATE	14 Jan 66
CONTRACT	OEC-5-10-068
NOTE	368p.
EDRS PRICE	EDRS Price MF-$1.50 HC-$18.50
DESCRIPTORS	*Economics, Experimental Curriculum, *Grade 12, *Instructional Materials, Programed Materials, Resource Materials, Secondary Grades, Social Studies, *Social Studies Units, *Textbooks, Worksheets
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ABSTRACT

These are the student materials for the experimental 12th grade economics course outlined and described in ECON 12: Teacher's Materials (see SO 000 029). The materials for the seven lessons of Unit I, "What is Economics," and the eight lessons of Unit II, "U. S. Price System," include content outlines, worksheets, graphs, some programs, and student readings by the author and others. Other related documents are ECON 12: Student Materials, Units I and II, Revised Test Edition (SO 000 110); Final Report (ED 028 093). (DJB)

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ECON 12

UNIT I: WHAT IS ECONOMICS

STUDENT MATERIALS

CONTENTS

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ECON 12
WORKSHEET NO. I

WANTS, RESOURCES AND SATISFACTION

Frame 1

List categories of wants

Can you make any general statement about the reasons why men want things?

Frame 2

Place the items listed on the black board (things people wanted) in the categories of wants listed in Frame 1.

Frame 3

List the wants which the class found in the newspaper articles, under the same categories listed in Frame 1.

ECON 12
WORKSHEET NO. I

Frame 3 (cont.)

On the basis of this exercise (Frame 3), do you wish to change the categories? If so, list the new categories and make any necessary alteration in the general statement you made in Frame 2.

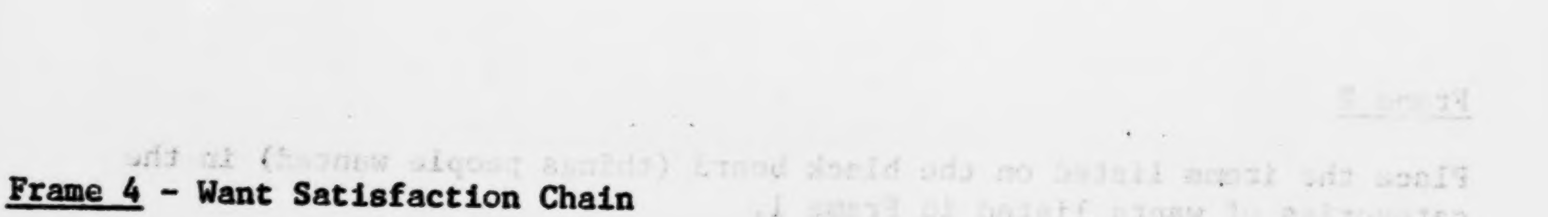
Frame 4 - Want Satisfaction Chain

Place the following list of words under the proper box in the want satisfaction chain.

distribution
satisfaction
wants
services
factors of production

physical
outputs
goods
psychological

inputs
consumption
resources
production



Frame 5

Below is a list of useful items.

whales
services of an
  advertising writer
printing press
sports car
vacation flight
  to Los Angeles
services of a barber
services of a pro
  baseball player
field of wheat
virgin forest

wild mink
T.V. show
operation by a doctor
airliner
chemicals in the air
office building
surf board
farm tractor
oil deposit
a high school
  education

There are two columns below, one labeled inputs, one outputs.

1. Below the column heading, list all the other words which mean the same thing.
2. In column I list all the useful items which are inputs. In column II list all the useful items which are outputs.
3. There are some items which are both inputs and outputs. Put them in both columns and connect them with a straight line.

Column I Inputs	Column II Outputs

Economists place all inputs (factors of production) in three categories -- Land, Labor, and Capital. These words are defined as follows:

Land is All Nautural Resources:
1. all land, water, and air
2. all elements and chemical compounds in the land, sea, and air
3. all plant and animal life in a natural state

Labor is all human exertion, physical or mental, for which compensation is paid.

Capital is:
1. all improvements of land -- roads, dams, canals, sea bouys, beacons, buildings, and crops, etc.
2. all improvements in the efficiency of labor which result from education or training.
3. all tools and machines

List the items from Column I (inputs) in the following three categories.

Land	Labor	Capital

All production is divided into goods and services. List the items from Column II (Outputs) in the following two categories:

Goods	Services

HUMAN NATURE AND SCARCITY

Frame 6

Practice in using equality and inequality signs

= means equal to
> means greater than
< means less than

Place the proper sign between the pairs of items listed below:

4	3	A + B	B + A + C (C=10)
3	4	A + B	B + A + C (C=10)
3+ 4	4+3	A + B	B + A + C (C=0)
7+8+6	6+8+6	$(1/2)^2$	$(1/4)^2$

Frame 7

Below is a table which shows the average per capita income in America during the last ninety years.

Year	Average Income Per Capita
1875	$ 254
1900	424
1925	781
1950	1,743
1964	2,248

Between 1875 and 1964 average income per capita (per person) increased by more than 8 times.

1. From what you know about American History would you say that Americans today are 8 times as satisfied as they were in 1875? Why or why not?

Place the sign (=, >, <), youtthink is correct, in the blanks below.

In 1875 $254 per capita personal income was _____ the amount needed to satisfy wants.

In 2000 $6,500 per capita personal income will be ______ the amount needed to satisfy wants.

Frame 8

In the table below there are four columns. The first is a list of want satisfying goods and services, and the other three columns are headed Neandrathal Man, Colonial American, and Modern American. Check which of the list would satisfy the wants of a typical Neandrathal Man, Colonial American, and Modern American, living in his era, with the needs typical to a person living in that era.

Want Satisfying Things	Neandrathal Man	Colonial Americans	Modern Americans
Fire	*		
Food	*		
Clothing	*		
Houses	*		
Guns			
Musical Instrument			
Plows			
Sailing ships			
Automobiles			
Radios			
T.V.			
Jet Airliners			

What reason can you give for why wants have always increased?

In what sense is it true that man needs everything he wants?

In what sense is it not true that man needs everything he wants?

Express what you think is the normal relationship between "wants" and "resources".

Frame 9 - Why or when are resources scarce?

Below is a list of resources and questions about them. The object of this frame is to help you decide on a really accurate definition of scarce resource. Answer each question and give your reasons for your answer in the spaces provided. The answer to many of these questions may be either yes or no, depending on your reasoning about the particular situation.

Robinson Crusoe is alone on an island. He assumes he will never be discovered. The island has 500 coconut trees, it is in the tropics, and there are not other men on the island.

Are coconut trees scarce for Crusoe?

Assuming Crusoe likes to eat fish, are fish in the ocean around the island scarce?

He finds 5 gold bars washed up in a chest. Are the bars scarce?

In 1763, was an acre of water front land on Lake Tahoe scarce for the indians living in that area?

Is the same acre of land scarce today for land developers?

Is ocean water scarce for a surfer who lives in Iowa?

Are shoes in a shoestore scarce?

Is your time scarce?

Under what conditions is a thing scarce? List as many of these conditions as possible.

Frame 10

A resource is anything man uses directly, or uses in production, to ________________________ his ________________________.

A scarce resource is any resource which man wants ______________ of than he has.

From the list below underline all the sysnonyms for scarce. Circle the best synonym, and write an explanation of why it is the best synonym.

rare, abundant, small amount, insufficient, small, few, unusual

Frame 11 - Perfection - the absense of scarcity

Write a paragraph which describes a world with no scarce resources. Is there such a place?

Have men ever gotten the relationship between wants and resources to a point which satisfied them?

What explanation for the existence and persistence of scarcity is given by Forster in Mr. Andrews?

Why was Phaom never satisfied with the amount of land he had? Was Phaom's nature, human nature?

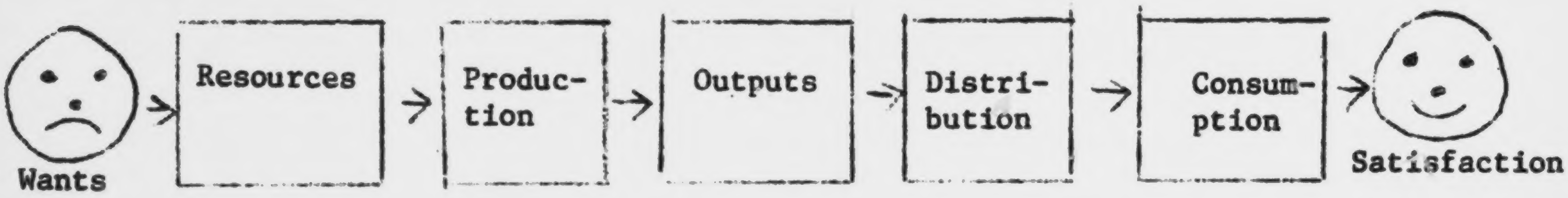
Have there ever been any individuals who were satisfied by the wants-resources relationship as it affected them? How did they?

Frame 12

The history of man's economic life is the story of how he has tried to make

Resources = Wants

There are five basic ways man has tried to make Resources = Wants. All five are suggested by the want satisfaction chain. What are they?


Wants
Resources
Production
Outputs
Distribution
Consumption
Satisfaction

1.

2.

3.

4.

5.

Above is the list of the means we use to overcome scarcity. The final question we need to ask is what it is we hope to achieve by overcoming scarcity. In order to answer this question, go back and study Frames 1-3 of the worksheet and then list what you believe to be the economic goals of our society?

From the material presented in this Frame, write a definition of economics.

MR. ANDREWS by E. M. Forster

The souls of the dead were ascending towards the Judgment Seat and the Gate of Heaven. The world soul pressed them on every side, just as the atmosphere presses upon rising bubbles, striving to vanquish them, to break their thin envelope of personality, to mingle their virtue with its own. But they resisted, remembering their glorious individual life on earth, and hoping for an individual life to come.

Among them ascended the soul of a Mr. Andrews who, after a beneficent and honourable life, had recently deceased at his house in town. He knew himself to be kind, upright and religious, and though he approached his trial with all humility, he could not be doubtful of its result. God was not now a jealous God. He would not deny salvation merely because it was expected. A righteous soul may reasonably be conscious of its own righteousness and Mr. Andrews was conscious of his.

'The way is long,' said a voice, 'but by pleasant converse the way becomes shorter. Might I travel in your company?'

'Willingly,' said Mr. Andrews. He held out his hand, and the two souls floated upwards together.

'I was slain fighting the infidel,' said the other exultantly, 'and I go straight to those joys of which the Prophet speaks.'

'Are you not a Christian?' asked Mr. Andrews gravely.

'No, I am a Believer. But you are a Moslem, surely?'

'I am not,' said Mr. Andrews. 'I am a Believer.'

The two souls floated upwards in silence, but did not release each other's hands. 'I am broad church,' he added gently. The word 'broad' quavered strangely amid the interspaces.

'Relate to me your career,' said the Turk at last.

'I was born of a decent middle-class family, and had my education at Winchester and Oxford. I thought of becoming a missionary, but was offered a post in the Board of Trade, which I accepted. At thirty-two I married, and had four children, two of whom have died. My wife survives me. If I had lived a little longer I should have been knighted.'

'Now I will relate my career. I was never sure of my father, and my mother does not signify. I grew up in the slums of Salonika. Then I joined a band and we plundered the villages of the infidel. I prospered and had three wives, all of whom survive me. Had I lived a little longer I shoald have had a band of my own.'

'A son of mine was killed travelling in Macedonia. Perhaps you killed him.'

'It is very possible.'

The two souls floated upward, hand in hand. Mr. Andrews did not speak again, for he was filled with horror at the approaching tragedy. This man, so godless, so lawless, so cruel, so lustful, believed that he would be admitted into Heaven. And into what a heaven -- a place full of the crude pleasures of a ruffian's life on earth! But Mr. Andrews felt neither disgust nor moral indignation. He was only conscious of an immense pity, and his own virtues confronted him not at all. He longed to save the man whose hand he held more tightly, who, he thought, was now holding more tightly on to him. And when he reached the Gate of Heaven, instead of saying 'Can I enter?' as he had intended, he cried out, 'Cannot he enter?'

And at the same moment the Turk uttered the same cry. For the same spirit was working in each of them.

From the gateway a voice replied, 'Both can enter.' They were filled with joy and pressed forward together.

Then the voice said, 'In what clothes will you enter?'

'In my best clothes,' shouted the Turk, 'the ones I stole.' And he clad himself in a splendid turban and a waistcoat embroidered with silver, and baggy trousers, and a great belt in which were stuck pipes and knives.

'And in what clothes will you enter?' said the voice to Mr. Andrews. Mr. Andrews thought of his best clothes, but he had no wish to wear them again. At last he remembered and said, 'Robes.'

'Of what colour and fashion?' asked the voice.

Mr. Andrews had never thought about the matter much. He replied, in hesitating tones, 'White, I suppose, of some flowing soft material,' and he was immediately given a garment such as he had described. 'Do I wear it rightly?' he asked.

'Wear it as it pleases you,' replied the voice. 'What else do you desire?'

'A harp,' suggested Mr. Andrews. 'A small one.'

A small gold harp was placed in his hand.

'And a palm-no, I cannot have a palm, for it is the reward of martyrdom; my life has been tranquil and happy.'

'You can have a palm if you desire it.'

But Mr. Andrews refused the palm, and hurried in his white robes after the Turk, who had already entered Heaven. As he passed in at the open gate, a man, dressed like himself, passed out with gestures of despair.

'Why is he not happy?' he asked. The voice did not reply.

'And who are all those figures, seated inside on thrones and mountains? Why are some of them terrible, and sad, and ugly?'

There was no answer. Mr. Andrews entered, and then he saw that those seated figures were all the gods who were then being worshipped on the earth. A group of souls stood round each, singing his praises. But the gods paid no heed, for they were listening to the prayers of living men, which alone brought them nourishment. Sometimes a faith would grow weak, and then the god of that faith also drooped and dwindled and fainted for his daily portion of incense. And sometimes, owing to a revivalist movement, or to a great commemoration, or to some other cause, a faith would grow strong, and the god of that faith grow strong also. And, more frequently still, a faith would alter, so that the features of its god altered and became contradictory, and passed from ecstasy to respectability, or from mildness and universal love to the ferocity of battle. And at times a god would divide into two gods, or three, or more, each with his own ritual and precarious supply of prayer.

Mr. Andrews saw Buddha, and Vishnu, and Allah, and Jehovah, and the Elohim. He saw little ugly determined gods who were worshipped by a few savages in the same way. He saw the vast shadowy outlines of the neo-Pagan Zeus. There were cruel gods, and coarse gods, and tortured gods, and, worse still, there were gods who were peevish, or deceitful, or vulgar. No aspiration of humanity was unfulfilled. There was even an intermediate state for those who wished it, and for the Christian Scientists a place where they could demonstrate that they had not died.

He did not play his harp for long, but hunted vainly for one of his dead friends. And though souls were continually entering Heaven, it still seemed curiously empty. Though he had all that he expected, he was conscious of no great happiness, no mystic contemplation of beauty, no mystic union with good. There was nothing to compare with that moment outside the gate, when he prayed that the Turk might enter and heard the Turk uttering the same prayer for him. And when at last he saw his companion, he hailed him with a cry of human joy.

The Turk was seated in thought, and round him, by sevens, sat the virgins who are promised in the Koran.

'Oh, my dear friend!' he called out. 'Come here and we will never be parted, and such as my pleasures are, they shall be yours also. Where are my other friends? Where are the men whom I love, or whom I have killed?'

'I, too, have only found you,' said Mr. Andrews. He sat down by the Turk, and the virgins, who were all exactly alike, ogled them with coal-black eyes.

'Though I have all that I expected,' said the Turk, 'I am conscious of no great happiness. There is nothing to compare with that moment outside the gate when I prayed that you might enter, and heard you uttering the same prayer for me. These virgins are as beautiful and good as I had fashioned, yet I could wish they were better.'

As he wished, the forms of the virgins became more rounded, and their eyes grew larger and blacker than before. And Mr. Andrews, by a wish similar in kind, increased the purity and softness of his garment and the glitter of his harp. For in that place their expectations were fulfilled, but not their hopes.

'I am going,' said Mr. Andrews at last. 'We desire infinity and we cannot imagine it. How can we expect it to be granted? I have never imagined anything infinitely good or beautiful excepting in my dreams.'

'I am going with you,' said the other.

Together they sought the entrance gate, and the Turk parted with his virgins and his best clothes, and Mr. Andrews cast away his robes and his harp.

'Can we depart?' they asked.

'You can both depart if you wish,' said the voice, 'but remember what lies outside.'

As soon as they passed the gate, they felt again the pressure of the world soul. For a moment they stood hand in hand resisting it. Then they suffered it to break in upon them, and they, and all the experience they had gained, and all the love and wisdom they had generated, passed into it, and made it better.

HOW MUCH LAND DOES A MAN NEED? by Leo Nikolaevich Tolstoy

An elder sister came to visit her younger sister in the country. The elder was married to a tradesman in town, the younger to a peasant in the village. As the sisters sat over their tea talking, the elder began to boast of the advantages of town life: saying how comfortably they lived there, how well they dressed, what fine clothes her children wore, what good things they ate and drank, and how she went to the theater, promenades, and entertainments.

The younger sister was piqued, and in turn disparaged the life of a tradesman, and stood up for that of a peasant.

"I would not change my way of life for yours," said she. "We may live roughly, but at least we are free from anxiety. You live in better style than we do, but though you often earn more than you need, you are very likely to lose all you have. You know the proverb, 'Loss and gain are brothers twain.' It often happens that people who are wealthy one day are begging their bread the next. Our way is safer. Though a peasant's life is not a fat one, it is a long one. We shall never grow rich, but we shall always have enough to eat."

The elder sister said sneerlingly:
"Enough? Yes, if you like to share with the pigs and the calves! What do you know of elegance or manners? However much your goodman may slave, you will die as you are living--on a dung heap--and your children the same."

"Well, what of that?" replied the younger. "Of course our work is rough and coarse. But, on the other hand, it is sure; and we need not bow to any one. But you, in your towns, are surrounded by temptations; today all may be right, but tomorrow the Evil One may tempt your husband with cards, wine, or women, and all will go to ruin. Don't such things happen often enough?"

Pahóm, the master of the house, was lying on the top of the oven, and he listened to the women's chatter.

"It is perfectly true," thought he. "Busy as we are from childhood tilling mother earth, we peasants have no time to let any nonsense settle in our heads. Our only trouble is that we haven't land enough. If I had plenty of land, I shouldn't fear the Devil himself!"

The women finished their tea, chatted a while about dress, and then cleared away the tea-things and lay down to sleep.

But the Devil had been sitting behind the oven, and had heard all that was said. He was pleased that the peasant's wife had led her husband into boasting, and that he had said that if he had plenty of land he would not fear the Devil himself.

"All right," thought the Devil. "We will have a tussle. I'll give you land enough; and by means of that land I will get you into my power."

Close to the village there lived a lady, a small landowner, who had an estate of about three hundred acres. She had always lived on good terms with the peasants, until she engaged as her steward an old soldier, who took to burdening the people with fines. However careful Pahóm tried to be, it happened again and again that now a horse of his got among the lady's oats, now a cow strayed into her garden, now his calves found their way into her meadows--and he always had to pay a fine.

Pahóm paid up, but grumbled, and, going home in a temper, was rough with his family. All through that summer Pahóm had much trouble because of this steward; and he was even glad when winter came and the cattle had to be stabled. Though he grudged the fodder when they could no longer graze on the pasture land, at least he was free from anxiety about them.

In the winter the news got about that the lady was going to sell her land, and that the keeper of the inn on the high road was bargaining for it. When the peasants heard this they were very much alarmed.

"Well," thought they, "if the innkeeper gets the land, he will worry us with fines worse than the lady's steward. We all depend on that estate."

So the peasants went on behalf of their Commune,* and asked the lady not to sell the land to the innkeeper; offering her a better price for it themselves. The lady agreed to let them have it. Then the peasants tried to arrange for the Commune to buy the whole estate, so that it might be held by them all in common. They met twice to discuss it, but could not settle the matter; the Evil One sowed discord among them, and they could not agree. So they decided to buy the land individually, each according to his means; and the lady willingly agreed to this plan as she had to the other.

Presently Pahóm heard that a neighbor of his was buying fifty acres, and that the lady had consented to accept one-half in cash and to wait a year for the other half. Pahóm felt envious.

"Look at that," thought he, "the land is all being sold, and I shall get none of it." So he spoke to his wife.

"Other people are buying," said he, "and we must also buy twenty acres or so. Life is becoming impossible. That steward is simply crushing us with his fines."

So they put their heads together and considered how they could manage to buy it. They had one hundred rubles** laid by. They sold a colt, and one-half of their bees; hired out one of their sons as a laborer, and took his wages in advance; borrowed the rest from a brother-in-law, and so scraped together half the purchase money.

Having done this, Pahóm chose out a farm of forty acres, some of it wooded, and went to the lady to bargain for it. They came to an agreement, and he shook hands with her upon it, and paid her a deposit in advance. Then they went to town and signed the deeds; he paying half the price down, and undertaking to pay the remainder within two years.

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**one hundred rubles: fifty dollars.

So now Pahóm had land of his own. He borrowed seed, and sowed it on the land he had bought. The harvest was a good one, and within a year he had managed to pay off his debts both to the lady and to his brother-in-law. So he became a landowner, plowing and sowing his own land, making hay on his own land, cutting his own trees, and feeding his cattle on his own pasture. When he went out to plow his fields, or to look at his growing corn, or at his grass meadows, his heart would fill with joy. The grass that grew and the flowers that bloomed there, seemed to him unlike any that grew elsewhere. Formerly, when he had passed by that land, it had appeared the same as any other land, but now it seemed quite different.

So Pahóm was well-contented, and everything would have been right if the neighboring peasants would only not have trespassed on his cornfields and meadows. He appealed to them most civilly, but they still went on: now the Communal herdsmen would let the village cows stray into his meadoes; then horses from the night pasture would get among his corn. Pahóm turned them out again and again, and forgave their owners, and for a long time he forbore from prosecuting any one. But at last he lost patience and complained to the District Court. He knew it was the peasants' want of land, and no evil intent on their part, that caused the trouble; but the thought:

"I cannot go on overlooking it, or they will destroy all I have. They must be taught a lesson."

About this time a rumor got about that many people were moving to new parts.

"There's no need for me to leave my land," thought Pahóm. "But some of the others might leave our village, and then there would be more room for us. I would take over their land myself and make my estate a big bigger. I could then live more at ease. As it is, I am still too cramped to be comfortable."

One day Pahóm was sitting at home, when a peasant, passing through the villa happened to call in. He was allowed to stay the night, and supper was given him. Pahóm had a talk with this peasant and asked him where he came from. The stranger answered that he came from beyond the Volga, where he had been working. One word led to another, and the man went on to say that many people were settling in those parts. He told how some people from his village had settled there. They had joined the Commune and had had twenty-five acres per man granted them. The land was so good, he said, that the rye sown on it grew as high as a horse, and so thick that five cuts of a sickle made a sheaf. One peasant, he said, had brought nothing with him but his bare hands, and now he had six horses and two cows of his own.

Pahóm's heart kindled with desire. He thought:

WWhy should I suffer in this narrow hole, if one can live so well elsewhere? I will sell my land and my homestead here, and with the money I will start afresh over there and get everything new. In this crowded place one is always having trouble. But I must first go and find out all about it myself.

Toward summer he got ready and started. He went down the Volga on a steamer to Samára, then walked another three hundred miles on foot, and at last he reached the place. It was just as the stranger had said. The peasants had plenty of land; every man had twenty-five acres of Communal land given him for his use, and any one who had money could buy, besides, at two shillings an acre, as much good freehold land as he wanted.

Having found out all he wished to know, Pahóm returned home as autumn came on, and began selling off his belongings. He sold his land at a profit, sold his homestead and all his cattle, and withdrew from membership of the Commune. He only waited till the spring, and then started with his family for the new settlement.

As soon as Pahóm and his family arrived at their new abode he applied for admission into the Commune of a large village. He stood treat to the Elders and obtained the necessary documents. Five shares of Communal land were given him for his own and his son's use: that is to say, 125 acres (not all together, but in different fields) besides the use of the Communal pasture. Pahóm put up the buildings he needed and bought cattle. Of the Communal land alone he had three times as much as at his former home, andthe land was good corn-land. He was ten times better off than he had been. He had plenty of arable land and pasturage and could keep as many head of cattle as he liked.

He went on in the same way for three years, renting land and sowing wheat. The seasons turned out well and the crops were good, so that he began to lay money by. He might have gone on living contentedly, but he grew tired of having to rent other people's land every year and having to scramble for it. Wherever there was good land to be had the peasants would rush for it and it was taken up at once, so that unless you were sharp about it you got none. It happened in the third year that he and a dealer together rented a piece of pasture land from some peasants; and they had already plowed it up, when there was some dispute, and the peasants went to law about it, and things fell out so that the labor was all lost.

"If it were my own land," thought Pahóm, "I should be independent and there would not be all this unpleasantness."

So Pahóm began looking out for land which he could buy, and he came across a peasant who had bought thirteen hundred acres, but having got into difficulties, was willing to sell again cheap. Pahóm bargained and haggled with him, and at last they settled the price at 1,500 rubles, part in cash and part to be paid later. They had all but clinched the matter when a passing dealer happened to stop at Pahóm's one day to get a feed for his horses. He drank tea with Pahóm, and they had a talk. The dealer said that he was just returning from the land of the Bashkirs, far away, where he had bought thirteen thousand acres of land, all for one thousand rubles. Pahóm questioned him further, and the tradesman said:

"All one needs to do is to make friends with the chiefs. I gave away about one hundred rubles' worth of dressing-gowns and carpets, besides a case of tea, and I gave wine to those who would drink it; and I got the land for less than two-pence an acre." And he showed Pahóm the title-deeds, saying:

"The land lies near a river, and the whole praire is virgin soil."

Pahóm plied him with questions, and the tradesman said:

"There is more land there than you could cover if you walked a year, and it all belongs to the Bashkirs. They are as simple as sheep, and land can be got almost for nothing."

Pahóm inquired how to get to the place, and as soon as the tradesman had left him he prepared to go there himself. He left his wife to look after the homestead and started on his journey, taking his man with him. They stopped at a town on their way and bought a case of tea, some wine, and other presents, as the tradesman had advised. On and on they went until they came to a place where the Bashkirs had pitched their tents. It was all just as the tradesman had said. The people lived on the steppes, by a river, in felt-covered tents. They neither tilled the ground nor ate bread. Their cattle and horses grazed in herds on the steppe. The colts were tethered behind the tents, and the mares were driven to them twice a day. The mares were milked, and from the milk kumiss was made. It was the women who prepared kumiss, and they also made cheese. As far as the men were concerned, drinking kumiss and tea, eating mutton, and playing on their pipes was all they cared about. They were all stout and merry, and all the summer long they never thought of doing any work. They were quite ignorant and knew no Russian, but were goodnatured enough.

As soon as they saw Pahóm they came out of their tents and gathered round their visitor. An interpreter was found, and Pahóm told them he had come about some land. The Bashkirs seemed very glad; they took Pahóm and led him into one of the best tents, where they made him sit on some down cushions placed on a carpet, while they sat round him. They gave him tea and kumiss, and had a sheep killed, and gave him mutton to eat. Pahóm took presents out of his cart and distributed them among the Bashkirs, and divided amongst them the tea. The Bashkirs were delighted. They talked a great deal among themselves, and then told the interpreter to translate.

"They wish to tell you," said the interpreter, "that they like you, and that it is our custom to do all we can to please a guest and to repay him for his gifts. You have given us presents; now tell us which of the things we possess please you best, that we may present them to you."

"What pleases me best here," answered Pahóm, "is your land. Our land is crowded, and the soil is exhausted; but you have plenty of land and it is good land. I never saw the like of it."

The interpreter translated. The Bashkirs talked among themselves for a while. Pahóm could not understand what they were saying, but saw that they were much amused, and that they shouted and laughed. Then they were silent and looked at Pahóm while the interpreter said:

"They wish me to tell you that in return for your presents they will gladly give you as much land as you want. You have only to point it out with your hand and it is yours."

"Choose whatever piece of land you like; we have plenty of it."

"How can I take as much as I like?" thought Pahóm. "I must get a deed to make it secure, or else they may say, 'It is yours,' and afterwards may take it away again."

"Thank you for your kind words," he said aloud. "You have much land, and I only want a little. But I should like to be sure which bit is mine. Could it not be measured and made over to me? Life and death are in God's hands. You good people give it to me, but your children might wish to take it away again."

"You are quite right," said the Chief. "We will make it over to you."

"I heard that a dealer had been here," continued Pahóm, "and that you gave him a little land, too, and signed title-deeds to that effect. I should like to have it done in the same way."

The Chief understood.

"Yes," replied he, "that can be done quite easily. We have a scribe, and we will go to town with you and have the deed properly sealed."

"And what will be the price?" asked Pahóm.

"Our price is always the same: one thousand rubles a day."

Pahóm did not understand.

"A day? What measure is that? How many acres would that be?

"We do not know how to reckon it out," said the Chief. "We sell it by the day. As much as you can go round on your feet in a day is yours, and the price is one thousand rubles a day."

Pahóm was surprised.

"But in a day you can get round a large tract of land," he said.

The Chief laughed.

"It will all be yours!" said he. "But there is one condition: If you don't return on the same day to the spot whence you started, your money is lost."

"But how am I to mark the way that I have gone?"

"Why, we shall go to any spot you like and stay there. You must start from that spot and make your round, taking spade with you. Wherever you think necessary, make a mark. At every turning dig a hole and pile up the turf; then afterwards we will go round with a plow from hole to hole. You may make as large a circuit as you please, but before the sun sets you must return to the place you started from. All the land you cover will be yours."

Pahóm was delighted. It was decided to start early next morning. They talked a while, and after drinking some more kumiss and eating some more mutton, they had tea again, and then the night came on. They gave Pahóm a feather-bed to sleep on, and the Bashkirs dispersed for the night, promising to assemble the next morning at daybreak and ride out before sunrise to the appointed spot.

Pahóm lay on the feather-bed but could not sleep. He kept thinking about the land.

"What a large tract I will mark off!" thought he. "I can easily do thirty-five miles in a day. The days are long now, and within a circuit of thirty-five miles what a lot of land there will be! I will sell the poorer land, or let it to peasants, but I'll pick out the best and farm it. I will buy two ox-teams, and hire two more laborers. About a hundred and fifty acres shall be plow-land, and I will pasture cattle on the rest."

Pahom lay awake all night and dozed off only just before dawn.

Looking around he saw through the open door that the dawn was breaking.

"It's time to wake them up," thought he. "We ought to be starting."

He got up, roused his man (who was sleeping in his cart), bade him harness; and went to call the Bashkirs.

"It's time to go to the steppe to measure the land," he said.

The Bashkirs rose and assembled, and the Chief came, too. Then they began drinking kumiss again, and offered Pahom some tea, but he would not wait.

"If we are to go, let us go. It is high time," said he.

The Bashkirs got ready and they all started; some mounted on horses, and some in carts. Pahóm drove in his own small cart with his servant, and took a spade with him. When they reached the steppe the morning red was beginning to kindle. They ascended a hillock (called by the Bashkirs a shikhan) and dismounting from their carts and their horses, gathered in one spot. The Chief came up to Pahom and stretching out his arm toward the plain,

"See," said he, "all this, as far as your eye can reach, is ours, You may have any part of it you like."

Pahóm's eyes glistened: it was all virgin soil, as flat as the palm of your hand, as black as the seed of a poppy, and in the hollows different kinds of grasses grew breast high.

The Chief took off his fox-fur cap, placed it on the ground and said:

"This will be the mark. Start from here and return here again. All the land you go round shall be yours."

Pahóm took out his money and put it on the cap. Then he took off his outer coat, remaining in his sleeveless under-coat. He unfastened his girdle and tied it tight below his stomach, put a little bag of bread into the breast of his coat, and tying a flask of water to his girdle, he drew up the tops of his boots, took the spade from his man, and stood ready to start. He considered for some moments which way he had better go--it was tempting everywhere.

"No matter," he concluded, "I will go toward the rising sun."

He turned his face to the east, stretched himself, and waited for the sun to appear above the rim.

"I must lose no time," he thought, "and it is easier walking while it is still cool."

The sun's rays had hardly flashed above the horizon, before Pahóm, carrying the spade over his shoulder, went down into the steppe.

Pahóm started walking neither slowly nor quickly. After having gone a thousand yards he stopped, dug a hole, and placed pieces of turf one on another to make it more visible. Then he went on; and now that he had walked off his stiffness he quickened his pace. After a while he dug another hole.

Pahóm looked back. The hillock could be distinctly seen in the sunlight, with the people on it, and the glittering tires of the cartwheels. At a rough guess Pahóm considered that he had walked three miles. It was growing warmer; he took off his under-coat, flung it across his shoulder, and went on again. It had grown quite warm now; he looked at the sun, it was time to think of breakfast.

"The first shift is done, but there are four in a day, and it is too soon yet to turn. But I will just take off my boots," said he to himself.

He sat down, took off his boots, stuck them into his girdle, and went on. It was easy walking now.

"I will go on for another three miles," thought he, "and then turn to the left. This spot is so fine, that it would be a pity to lose it. The further one goes, the better the land seems."

He went straight on for a while, and when he looked round, the hillock was scarcely visible and the people on it looked like black ants, and he could just see something glistening there in the sun.

"Ah," thought Pahóm, "I have gone far enough in this direction, it is time to turn. Besides I am in a regular sweat and very thirsty."

He stopped, dug a large hole and heaped up pieces of turf. Next he untied his flask, had a drink, and then turned sharply to the left. He went on and on; the grass was high, and it was very hot.

Pahóm began to grow tired: he looked at the sun and saw that it was noon.

"Well," he thought, "I must have a rest."

He sat down and ate some bread and drank some water; but he did not lie down, thinking that if he did he might fall asleep. After sitting a little while, he went on again. At first he walked easily: the food had strengthened him; but it had become terribly hot, and he felt sleepy; still he went on, thinking: "An hour to suffer, a life-time to live."

He went a long way in this direction also and was about to turn to the left again, when he perceived a damp hollow. "It would be a pity to leave that out," he thought. "Flax would do well there." So he went on past the hollow and dug a hole on the other side of it before he turned the corner. Pahom looked toward the hillock. The heat made the air hazy; it seemed to be quivering, and through the haze the people on the hillock could scarcely be seen.

"Ah!" thought Pahóm. "I have made the sides too long; I must make this one shorter." And he went along the third side, stepping faster. He looked at the sun: it was nearly half way to the horizon, and he had not yet done two miles of the third side of the square. He was still miles from the goal.

"No," thougt he, "though it will make my land lop-sided, I must hurry back in a straight line now. I might go too far, and as it is I have a great deal of land."

So Pahóm hurriedly dug a hole and turned straight toward the hillock.

Pahóm went straight toward the hillock, but he now walked with difficulty. He was done up with the heat, his bare feet were cut and bruised, and his legs began to fail. He longed to rest, but it was impossible if he meant to get back before sunset. The sun waits for no man, it was sinking lower and lower.

"Oh dear,' he thought, "if only I have not blundered trying for too much' What if I am too late?"

He looked toward the hillock and at the sun. He was still far from his goal, and the sun was already near the rim.

Pahóm walked on and on; it was very hard walking, but he went quicker and quicker. He pressed on, but was still far from the place. He began running threw away his coat, his boots, his flask, and his cap, and kept only the spade, which he used as a support.

"What shall I do," he thought again, "I have grasped too much and ruined the whole affair. I can't get there before the sun sets."

And this fear made him still more breathless. Pahóm went on running, his soaked shirt and trousers stuck to him, and his mouth was parched. His breast was working like a blacksmith's bellows, his heart was beating like a hammer, and his legs were giving way as if they did not belong to him. Pahom was seized with terror lest the should die of the strain.

Though afraid of death, he could not stop. "After having run all that way they will call me a fool if I stop now," thought he. And he ran on and on, and drew near and heard the Bashkirs yelling and shouting to him, and their cries inflamed his heart still more. He gathered his last strength and ran on.

The sun was close to the rim, and cloaked in mist looked large and red as blood. Now, yes, now, it was about to set' The sun was quite low, but he was also quite near his aim. Pahom could already see the people on the hil-ock waving their arms to hurry him up. He could see the fox-fur cap on the ground, and the money on it, and the Chief sitting on the ground holding his sides. And Pahom remembered his dream.

"There is plenty of land," thought he, "but will God let me live on it? I have lost my life, I have lost my life! I shall never reach that spot!"

Pahóm looked at the sun, which had reached the earth; one side of it had already disappeared. With all his remaining strength he rushed on, bending his body forward so that his legs could hardly follow fast enough to keep him from falling. Just as he reached the hillock it suddenly grew dark. He looked up--the sun had already set! He gave a cry: "All my labor has been in vain," thought he, and was about to stop, but he heard the Bashkirs still shouting, and remembered that though to him, from below, the sun seemed to have set, they on the hillock could still see it. He took a long breath and ran up the hillock. It was still light there. He reached the top and saw the cap. Before it sat the Chief laughing and holding his sides. Again Pahóm remembered his dream, and he uttered a cry; his legs gave way beneath him, he fell forward and reached the cap with his hands.

"Ah, that's a fine fellow'" exclaimed the Chief. "He has gained much land!"

Pahóm's servant came running up and tried to raise him, but he saw that blood was flowing from his mouth. Pahóm was dead!

The Bashkirs clicked their tongues to show their pity.

His servant picked up the spade and dug a grave long enough for Pahóm to lie in it, and buried him in it. Six feet from his head to his heels was all he needed.

Worksheet No. 2 on Production Specialization

One compelling force which shapes economic organization is the effort of men to overcome scarcity through improved production. You have just seen a film describing some major inventions which have increased production efficiency. This worksheet gives a closer look at the effects of specialization of production.

FRAME 1

Film Analysis

The following table, which requires that you categorize the main ideas contained in the film, will aid you in analyzing the concept of spcialization.

FILM ANALYSIS

COL. 1 Inventions which increased productivity	COL. 2 Appropriate measure of productivity	COL. 3 Explanation of the causes of increased productivity

FRAME 2

There are three main reasons why specialization increases productivity. Examples of each of these reasons are listed in COL. 1 of the table in FRAME 1. The purpose of this frame is to figure out what these three reasons are. First, divide the inventions you listed in COL. 1 above into three groups. Each group should contain all of the inventions which increased productivity for the same reason. Some of the inventions might belong in more than one group. Second, for each group of inventions, write in your own words, the reason the inventions in that group have in common which brought increased productivity.

GROUP 1	**GROUP 2**	**GROUP 3**

REASON 1 ______________________________

____

____

REASON 2 ______________________________

____

____

REASON 3 ______________________________

____

____

INDUSTRIALIZATION

In the film on production you saw that specialization of land, labor and capital have always been present in any system of production. However, there have been great changes in the rate at which specialization has increased. The rate of specialization increase is closely

related to the rate of innovation. That is, producers invent and use new and more efficient techniques of production and new and sometimes more satisfying consumer products.

The most important change in the rate of innovation came at the time of the Industrial Revolution. The Industrial Revolution which began in England around 1750 has now spread over most of the world and today the degree to which a country is industrialized is often considered its most important characteristic.

The coming of the industrial system was marked by the widespread use of machines for production, the use of power (steam was the first kind) to run machines, the organization of production within factories, a scientific attitude toward the problems of production, which emphasized increasing productive efficiency, and the emergence of mass market to consume the products of mass production.

The concentration of the total production process within the confines of a factory created the possibility of a rapid rate of innovation - a rate that has increased steadily from 1760 to the present.

FRAME 3

PRODUCTION DEMONSTRATION

Use the tables provided in this frame to collect data on the two class "production" processes.

TABLE A

Production: Collating and Pinning six hseets of paper

Input # workers	Output # pinned packets per two minutes		
	1st group	2nd group	average output
1			
2			
3			
3A			
4			
4A			

FRAME 3 (cont.)

TABLE B

Production: Collating and stapling

Input **# workers**	**Output** **# stapled packets per two minutes**		
	1st group	**2nd group**	**average of two groups**
1			
2			
3			
3A			
4			
4A			
5			

FRAME 4

The following frame will help you analyze the production demonstration completed in class.

1. **What is the relation between labor input and output?**
2. **List the different things which affect the relation between labor input and output, and state how these factors affect labor productivity.**

Things which affected labor productivity	**Description of the effect**

3. **For production process A what are the other inputs which are not shown in the tables constructed in class? Why do you think that these other inputs were not included in the table? Summarize your answer in the table below:**

Other inputs	**reason they were left out of the table**

4. **Assume that table A describes all possibilities for production of collated and pinned papers by process A. There is a most efficient way to organize each number of workers. Construct a table which shows the level of output produced using 1, 2, 3, 4 workers, using the most efficient organization of production in each case. Do the same for production process B.**

Production Schedule Pinned Papers		**Production Schedule Stapled Papers**	
# workers	**output/two minutes**	**#workers**	**output/two min.**

These tables are called production schedules or production functions. They show the most efficient level of output produced by each possible number of labor inputs. This table is very useful, for it tells the manager of the firm how many men will be required to produce different amounts of output.

Using these tables, do you see anything new about the way input and output are related to each other? Describe in words.

5. **Add another column to each table labeled increase in output. When the amount of labor increases from 1 to 2 workers, output goes up from ________ to ________ units. This is the increase in output for two workers. Place this number in the column across from 2 workers. Compute the increase in output for 3, 4, 5 workers.**

FRAME 4 (cont.)

a. Are the increases in output proportionate to the increases in input?

b. If they are not, describe how increases in output are related to increases in the amount of labor used. Do this separately for the two tables.

c. This relation between increases in output and increases in input is called the law of diminishing returns. After a class discussion of the meaning of the law, write down a correct statement of the law.

d. Are there diminishing returns in both production processes A and B? If there are no diminishing returns in one or both cases explain why?

FRAME 5

DIVISION OF LABOR

From the examples of division of labor given in the production film and in the class production demonstration, write two reasons for increased productivity when division of labor is applied to the production of a good or service.

FRAME 6

USE OF CAPITAL

List all the reasons you can which explain why the use of capital increases productinn efficiency.

FRAME 7

Below are production schedules for three production processes, X, Y, and Z.

1. Identify which, if any, are examples of diminishing returns by checking the proper box.

2. Place an X beside the level of inputs at which diminishing returns begins.

PROCESS X			PROCESS Y			PROCESS Z		
Input No. Workers	Output No. Items	Change In Output	Input No. Workers	Output No. Items	Change In Output	$Value of Capital Input	$Value of Output	Change In Output
5	105		1	76		1,000,000	8,000,000	
7	110		2	81		2,000,000	16,000,000	
9	120		3	86		3,000,000	24,000,000	
11	129		4	71		3,500,000	32,000,000	
13	138		5	77		3,750,000	40,000,000	
15	145		6	87		4,750,000	48,000,000	
17	145		7	101		5,250,000	50,000,000	
19	140		8	120		6,000,000	52,000,000	

Diminishing Returns: Yes ☐ No ☐

Diminishing Returns: Yes ☐ No ☐

Diminishing Returns: Yes ☐ No. ☐

FRAME 8 - Alternative Cost

PANEL I

Caveman	Daily Output	
	Arrows	Axes
A	8	6
B	10	5

In the above production schedule, A can produce 8 arrows at a cost of ______________________ axes.

For A: if 8 arrows cost 6 axes, 1 arrow costs _________ axes.

For B: 10 arrows cost ______ axes, 1 arrow costs ________ ax.

For A: 1 arrow has an alternative cost of .75 ax

For B: 1 arrow has an alternative cost of .5 ax

To maximize production, B produces the product for which he has _________ (higher or lower) alternative cost.

To maximize production, B produces the product for which he has the ___________________relative efficiency, and the _______ alternative cost.

PANEL II

Typist	Words/minute	
	Typing	Shorthand
Smith	60	100
Jones	40	80

Given the above production schedule:

Which secretary should be a full-time typist? ______________ Why?

Which secretary should take shorthand full-time?____________
Why?

Panel III

	Wheat/Acre	Autos/1000 man hrs.
U. S.	40	4
Brazil	30	1

Which country should produce which product.
Wheat___________________
Atuos___________________
Why?

In the above example, the U.S. has a__________and______________ advantage in autos, and a _____________advantage in wheat.

Each country produces either wheat or autos at the lowest _____________cost.

In your own words, write a definition of alternative cost.

EFFICIENCY

1. To close the gap between wants and available goods and services, we try to make the most efficient use of productive resources.

In doing that, we need to compare two or more operations to see which is the more efficient producer of some good or service.

To make the comparison, we need certain information.

Suppose we know that Plant A produces 9000 plates per day and that Plant B produces 4500 similar plates per day.

With that information, can we tell which plant is the more efficient producer?

> No. The figures tell us how much each plant produces per day but they say nothing about efficiency.

2. From the information given, we know that Plant A produces twice as much as Plant B, but for all we know it may use ten times the resources.

Before we can say that one plant is more efficient than another, we must know not only the output but the ____________________

> Input

3. As a first step in deciding which of two plants is more efficient, we figure the ratio of output to input for each plant to get its production efficiency, or, as it is commonly called, its **productivity**.

For example, suppose that Plant A produces 9000 plates from inputs that cost a total of $2250 while Plant B produces 4500 plates from inputs totaling $1500. Then we can say:

$$\text{Productivity, Plant A} = \frac{\text{Output}}{\text{Input}} = \frac{9000 \text{ plates}}{\$2250}$$

or, reducing the ratio to a convenient unit of input, $\frac{4 \text{ plates}}{\$1}$

which can also be written 4 plates/$1

$$\text{Productivity, Plant B} = \frac{\text{Output}}{\text{Input}}$$

$$= \frac{(\qquad)\text{ plates}}{\$(\qquad)} = \frac{(\qquad\qquad)}{(\quad)} = (\qquad)/\$1$$

Productivity, Plant B

$$\frac{4500 \text{ plates}}{\$1500} = \frac{3 \text{ plates}}{\$1} = 3 \text{ plates}/\$1$$

So now we have the productivity of both plants:

Plant A: 4 plates/$1

Plant B: 3 plates/$1

We can use this in the second step of calculating how efficient one plant is relative to another.

Relative efficiency is the ratio of the productivities of the two plants. For example:

Relative efficiency of Plant A as compared to Plant B

$$= \frac{\text{productivity, Plant A}}{\text{productivity, Plant B}} = \frac{4 \text{ plates}/\$1}{(\qquad)/\$1}$$

(fill in the blank)

Relative efficiency of Plant A as compared to Plant B

$$= \frac{4 \text{ plates }/\$1}{3 \text{ plates }/\$1}$$

5. Now you don't have to remember this next little calculation, but the rules for dividing fractions allow us to do this with the information we have:

$$\frac{4\ \text{plates}}{\$1} \times \frac{\$1}{3\ \text{plates}} = \frac{4}{3} = \text{relative efficiency of A as compared to B}$$

True or false?

The fraction 4/3 is the ratio of the outputs of Plants A and B.

True

6. What happened in this calculation? Because we used the same units for the input in each case (that is $1), the inputs canceled out. That left us with a ratio containing just the outputs.

The relative efficiency became simply the ratio of the outputs.

Example

Productivity: Factory X = 5 boxes per ton
Factory Y = 4 boxes per ton

Relative efficiency of Factory X as compared to Factory Y:

$$\frac{\text{Output of X}}{\text{Output of Y}} = 5/4 = 1.25$$

Factory X is ____________ times more efficient than Factory Y.

1.25

7. Factory X is 1.25 times more efficient than Factory Y. From any given amount of material, Factory X will produce 1.25 times more than will Factory Y.

Or, to say it more formally, as compared to Factory Y, Factory X has a relative efficiency of 1.25.

Now, let's figure it the other way around.

What is the relative efficiency of Factory Y as compared to Factory X?

$$\text{Relative efficiency of Y} = \frac{\text{Output of Y}}{\text{Output of X}} = \_\_\_\_\_\_/\_\_\_\_\_ = \_\_\_\_\_\_\_$$

$$\frac{\text{Output of Y}}{\text{Output of X}} = 4/5 = .8$$

8. Factory Y is only __________ times as efficient as Factory X.

.8

9. We know: Factory Y has a relative efficiency of .8 as compared to Factory X.

It means: For a given tonnage of input, Factory Y can produce .8 of the amount produced by Factory X.

SO.............

For the amount of input that Factory X uses to produce 10 boxes, Factory Y will produce only __________ boxes.

8 boxes.

From the amount of input used by Factory X to produce 10 boxes, Factory Y will produce

(output of X) x (relative efficiency of Y)

= 10 x .8 = 8

10. Problem: We have two assembly lines producing similar products: Assembly Line A produces 8 widgets/$1. Assembly Line B has a relative efficiency of 1.5 as compared to Line A.

What is the output per dollar for Assembly Line B?

12 widgets.

Assembly Line B has a relative efficiency of 1.5 as compared to A. For an input of $1, Line A produces 8 widgets while Line B produces

(output of A) x (relative efficiency of B)

= 8 x 1.5 = 12 widgets

11. As noted earlier, if we want to compare the productivity of two operations, we must state the input of each in the same unit.

You may have noticed that each input used to date has been expressed in amounts convenient for calculation -- per ton, per $1, and other single units.

Larger units are acceptable, but it's wise to keep them simple -- say 10, perhaps 1000, or even 1 million of whatever factor is involved.

Which of the following productivity ratios are not stated in their most convenient form?

(a) 12 ounces/$1	(d) 9 stampings/$12
(b) 7 boxes per ton	(e) 12 shirts per man-hour
(c) 10 pieces/1.3 yards	(f) 60 frames/hour

(c) and (d)

In both, the input units should be simplified to make comparison easier.

12. So far, inputs have been stated as "per ton," "per yard," "per $1," and so on, as though they contained only one factor.

This is fine. A company, an industry, or even a nation may need to know how efficient it is in using steel, labor, or some other resource. But it will also want to know how efficient it is overall. Thus it is convenient to distinguish between what we might call "one-factor productivity" and total productivity.

To figure total productivity we combine all the resources which make up the input. How can we combine all of the input resources into a single number?

We simply figure the money value for each factor and then add these values together to get a total input.

13. Clipco makes metal fasteners. Here are production figures for Clipco:

Output	1000 fasteners
Inputs	
Material	1 ton steel costing $150
Labor	5 men for 4 hours; wage $3/hour
Machines	4 hours at $10/hour

In simplest form, what are

(a) labor productivity?

(b) total productivity?

Labor productivity: 50 fasteners/man-hour

Total productivity: 4 fasteners/$1

---

14. You have a choice:

I'd like to see the calculation	Frame 15
I don't understand "man-hours"	Frame 16
I'll take the next problem	Frame 17

---

15. **Calculation**

Inputs	Amount	Cost
Material	1 ton	$150
Labor	5 men x 4 hours = 20 man-hours	60
Machines	4 hours	40
Total Input		$250

Labor productivity = output/man-hour
= 1000 fasteners/20 man-hours
= 50 fasteners/man-hour

Total productivity = output/total input
= 1000 fasteners/$250
= 4 fasteners/$1

Your choice:

Explanation of "man-hours"	Frame 16
Next problem	Frame 17

---

16. "Man-hours" means simply

(number of men) times (number of hours)

1 man working for 1 hour produces

1 x 1 = 1 man-hour

5 men working for 4 hours produce

5 x 4 = 20 man-hours

20 men working for 1 hour produce

20 x 1 = 20 man-hours

---

400 man-hours is the work

400 men do in ________hour
or 200 men do in ________hours
or 100 men do in ________hours
or 50 men do in ________hours
or 8 men do in ________hours

400 man-hours is the work

400 men do in 1 hour
200 men do in 2 hours
100 men do in 4 hours
50 men do in 8 hours
8 men do in 50 hours

and so on

To Frame 17

17. We calculated the following for Clipco:

Labor productivity: 50 fasteners/man-hour

Total productivity: 4 fasteners/$1

Here are production figures for its rival, Gripco:

Output	2000 fasteners
Inputs	
Material	2 tons steel at $150/ton
Labor	2 men for 4 hours; wage $4/hour
Machines	4 hours at $42/hour

What is the relative efficiency of Gripco as compared with Clipco?

Relative efficiency of Gripco as compared with Clipco is 1

Total productivity, Gripco = 200 fasteners/$500
= 4 fasteners/$1

$$\text{Relative efficiency} = \frac{\text{Output of Gripco}}{\text{Output of Clipco}} = \frac{4}{4} = 1$$

18. In your own words, what is the meaning of a relative efficiency of 1?

____

____

____

A relative efficiency of 1 tells us that the companies are equally efficient. Each would produce the same amount of output from the same total input.

ECON 12

THEORY OF ABSOLUTE AND COMPARATIVE ADVANTAGE

This lesson is about the Theory of Absolute and Comparative Advantage, a useful idea which is much simpler than its name makes it sound.

This theory demonstrates why people began to specialize in the work they did and how this benefited the societies to which they belonged.

Let's begin in the Stone Age and have two cavemen, A and B producing arrows and axes. In one day, Caveman A can produce either 10 arrows or 4 axes; in the same period, Caveman B can produce 8 arrows or 6 axes.

Caveman	Daily Output	
	Arrows	Axes
A	10	4
B	8	6

To get maximum production, each should do the thing he does best. Thus Caveman A should produce ....while Caveman B should produce ....

A should produce arrows; B should produce axes

Caveman A is better at producing arrows; B is better at producing axes. Each is said to have absolute advantage in producing the things he makes most efficiently.

If Typist X types 70 words a minute and Typist Y types 65 words a minute, Typist X has an .... advantage.

absolute. Typist X is more efficient typist.

Now let's consider a different situation:

Caveman	Daily Output	
	Arrows	Axes
A	10	6
B	8	5

In producing arrows, Caveman A has an ....

absolute advantage

In producing axes, which man has an absolute advantage?

A

In fact, A has an absolute advantage in producing both arrows and axes. But he cannot do both at once. We also want B to work on one or the other. And the question is "Which one?"

The answer lies in something you have met already, relative efficiency. It will help us decide what each man does best.

Caveman A is better than Caveman B at producing both arrows and axes. But he may be even better at one than he is at the other. More formally, A may have a higher relative efficiency for one task than for the other. So let's compare the relative efficiencies of A and B at the two tasks:

Arrows

$$\text{A's efficiency relative to B's} = \frac{\text{Output of A}}{\text{Output of B}} = \frac{10}{8} = 1.25$$

Axes

$$\text{A's efficiency relative to B's} = \frac{(\quad)\text{ of A}}{(\quad)} = \frac{(\quad)}{(\quad)} = (\quad)$$

(fill in the blanks)

$$\text{Axes: } \frac{A}{B} = \frac{6}{5} = 1.20$$

Since A has a relative efficiency of 1.25 in producing arrows and of 1.20 in producing axes, he has a higher relative efficiency in producing ....

---

arrows

A should produce the product for which he has the higher relative efficiency. Thus he will produce .... leaving B to produce ....

A: arrows; B: axes

This comparison of relative efficiencies has shown us that A has the comparative advantage in producing arrows.

To summarize: A has an absolute advantage over B in producing both arrows and axes; he has a(n) .... advantage in producing arrows.

---

comparative

In cases like the one just discussed, we get maximum production if each produces the good or service for which he has the comparative advantage.

Here is another example:

Caveman	Daily Output	
	Arrows	Axes
C	7	12
D	10	15

What should C produce?

---

axes

If you want to see the calculation, go to Frame 11.

If you prefer to go ahead, go to Frame 12.

Solution

C's efficiency relative to D:

Arrows: 7/10 = .7

Axes: 12/15 = .8

C has a higher relative efficiency in producing axes (.8 for axes, against .7 for arrows.)

C has the comparative advantage in producing axes.

Go to the next frame.

Summary

Given this information

Caveman	Daily Output	
	Arrows	Axes
C	7	12
D	10	15

- D has the absolute advantage for production of both arrows and axes.
- In a situation in which C joins with D in producing two outputs, C has the comparative advantage in producing axes.
- Maximum production comes from having each produce the good or service for which he has the comparative advantage.
- Thus C should produce axes and D should produce arrows.

EFFICIENCY

To close the gap between wants and available goods and services, we try to make the most efficient use of productive resources.

In doing that, we need to compare two or more operations to see which is the more efficient producer of some good or service.

To make the comparison, we need certain information.

Suppose we know that Plant A produces 9000 plates per day and that Plant B produces 4500 similar plates per day.

With that information, can we tell which plant is the more efficient producer?

No. The figures tell us how much each plant produces per day but they say nothing about efficiency.

From the information given, we know that Plant A produces twice as much as Plant B, but for all we know it may use ten times the resources.

Before we can say that one plant is more efficient than another, we must know not only the output but the ....

Input

As a first step in deciding which of two plants is more efficient, we figure the ratio of output to input for each plant to get its production efficiency, or, as it is commonly called, its productivity.

For example, suppose that Plant A produces 9000 plates from inputs that cost a total of $2250 while Plant B produces 4500 plates from inputs totaling $1500. Then we can say:

$$\text{Productivity, Plant A} = \frac{\text{Output}}{\text{Input}} = \frac{9000 \text{ plates}}{\$2250}$$

or, reducing the ratio to a convenient unit of input,

$\frac{4 \text{ plates}}{\$1}$ which can also be written 4 plates/$1

$$\text{Productivity, Plant B} = \frac{\text{Output}}{\text{Input}}$$

$$= \frac{(\qquad)\text{ plates}}{\$(\qquad)} = \frac{(\qquad\qquad)}{(\qquad)} = (\qquad)/\$1$$

Productivity, Plant B

$$\frac{4500 \quad \text{plates}}{\$1500} = \frac{3 \text{ plates}}{\$1} = 3 \text{ plates}/\$1$$

So now we have the productivity of both plants:

Plant A: 4 plates/$1

Plant B: 3 plates/$1

We can use this in the second step of calculating how efficient one plant is relative to another.

Relative efficiency is the ratio of the productivities of the two plants. For example:

Relative efficiency of Plant A as compared to Plant B

$$= \frac{\text{productivity, Plant A}}{\text{productivity, Plant B}} = \frac{4 \text{ plates}/\$1}{(\qquad)/\$1}$$

(fill in the blank)

Relative efficiency of Plant A as compared to Plant B

$$= \frac{4 \text{ plates }/\$1}{3 \text{ plates}/\$1}$$

Now you don't have to remember this next little calculation, but the rules for dividing fractions allow us to do this with the information we have:

$$\frac{4 \text{ plates}}{\$1} \times \frac{\$1}{3 \text{ plates}} = \frac{4}{3} = \text{relative efficiency of A as compared to B}$$

True or false?

The fraction 4/3 is the ratio of the outputs of Plants A and B.

True

What happened in this calculation? Because we used the same units for the input in each case (that is $1), the inputs canceled out. That left us with a ratio containing just the outputs.

The relative efficiency became simply the ratio of the outputs.

Example

Productivity: Factory X = 5 boxes per ton
Factory Y = 4 boxes per ton

Relative efficiency of Factory X as compared to Factory Y:

$$\frac{\text{Output of X}}{\text{Output of Y}} = 5/4 = 1.25$$

Factory X is .... times more efficient than Factory Y.

1.25

Factory X is 1.25 times more efficient than Factory Y. From any given amount of meterial, Factory X will produce 1.25 times more than will Factory Y.

Or, to say it more formally, as compared to Factory Y, Factory X has a relative efficiency of 1.25.

Now let's figure it the other way around.

What is the relative efficiency of Factory Y as compared to Factory X?

$$\text{Relative efficiency of Y} = \frac{\text{Output of Y}}{\text{Output of X}} = \text{.....}/\text{.....} = \text{......}$$

$\frac{\text{Output of Y}}{\text{Output of X}} = 4/5 = .8$

Factory Y is only ...... times as efficient as Factory X.

.8

We know: Factory Y has a relative efficiency of .8 as compared to Factory X.

It means: For a given tonnage of input, Factory Y can produce .8 of the amount produced by Factory X.

so...

For the amount of input that Factory X uses to produce 10 boxes, Factory Y will produce only ..... boxes.

---

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From the amount of input used by Factory X to produce 10 boxes, Factory Y will produce

(output of X) x (relative efficiency of Y)

= 10 x .8 = 8

Problem: We have two assembly lines producing similar products. Assembly Line A produces 8 widgets/$1. Assembly Line B has a relative efficiency of 1.5 as compared to Line A.

What is the output per dollar for Assembly Line B?

---

12 widgets.

Assembly Line B has a relative efficiency of 1.5 as compared to A. For an input of $1, Line A produces 8 widgets while Line B produces

(output of A) x (relative efficiency of B)

= 8 x 1.5 = 12 widgets

As noted earlier, if we want to compare the productivity of two operations, we must state the input of each in the same unit.

You may have noticed that each input used to date has been expressed in amounts convenient for calculation -- per ton, per $1, and other single units.

Larger units are acceptable, but its's wise to keep them simple -- say 10, perhaps 1000, or even 1 million of whatever factor is involved.

Which of the following productivity ratios are not stated in their most convenient form?

(a) 12 ounces/$1

(b) 7 boxes per ton

(c) 10 pieces/1.3 yards

(d) 9 stampings/$12

(e)12 shirts per man-hour

(f)60 frames/hour

(c) and (d)

In both, the input units should be simplified to make comparison easier.

So far, inputs have been stated as "per ton," "per yard," "per $1," and so on, as though they contained only one factor.

This is fine. A company, an industry, or even a nation may need to know how efficient it is in using steel, labor, or some other resource. But it will also want to know how efficient it is overall. Thus it is convenient to distinguish between what we might call "one-factor productivity" and total productivity.

To figure total productivity we combine all the resources which make up the input. How can we combine all of the input resources into a single number?

We simply figure the money value for each factor and then add these values together to get a total input.

Clipco makes metal fasteners. Here are production figures for Clipso:

Output	1000 fasteners
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In simplest form, what are

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Labor productivity: 50 fasteners/man-hour

Total productivity: 4 fasteners/$1

You have a choice:

I'd like to see the calculation	Frame 15
I don't understand "man-hours"	Frame 16
I'll take the next problem	Frame 17

Calculation

Inputs	Amount	Cost
Material	1 ton	$150
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Machines	4 hours	40
Total Input		$250

Labor productivity = output/man-hour
= 1000 fasteners/20 man-hours
= 50 fasteners/man-hour

Total productivity = output/total input
= 1000 fasteners/$250
= 4 fasteners/$1

Your choice:

Explanation of "man-hours"	Frame 16
Next problem	Frame 17

"Man-hours" means simply

(number of men) times (number of hours)

1 man working for 1 hour produces

1 x 1 = 1 man-hour

5 men working for 4 hours produce

5 x 4 = 20 man-hours

20 men working for 1 hour produce

20 x 1 = 20 man-hours

---

400 man-hours is the work

400 men do in ...... hour
or 200 men do in ...... hours
or 100 men do in ...... hours
or 50 men do in ...... hours
or 8 men do in ...... hours

400 man-hours is the work

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and so on

To Frame 17

We calculated the following for Clipco:

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$$\text{Relative efficiency} = \frac{\text{Output of Gripco}}{\text{Output of Clipco}} = \frac{4}{4} = 1$$

In your own words, what is the meaning of a relative efficiency of 1?

....

....

....

A relative efficiency of 1 tells us that the companies are equally efficient. Each would produce the same amount of output from the same total input.

Your choice:

Explanation of "man-hours"	Frame 16
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400 man-hours is the work

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8 men do in 50 hours

and so on

To Frame 17

ECON 12
worksheet no. 3

EXCHANGE, MONEY AND CREDIT

Frame 1

In the film on production, it was shown how specialized production led to great increases in output. For example, by dividing labor in a needle factory, eight men increased output from 800 to 8,000 needles per day. Obviously, eight men could not themselves consume 8,000 needles a day, but they had to consume other necessary goods and services. In order to get these necessary goods and services, they had to be able to exchange their needles for other goods and services.

List several facts which follow from the existence of specialized production.

Frame 2

If there were two items, needles and shoes, what would you have to know in order to make an exchange?

Frame 3

Father Lafitan, a Jesuit priest, described how American Indians traded some three hundred years ago:

> "The savage nations always trade with one another. Their commerce is, like that of the ancients, a simple exchange of wares against wares. Each has something particular which the other does not, and the traffic makes these things circulate among them. Their wares are grain, porcelain, furs, robes, tobacco, mats, canoes, work made of moose or buffalo hids and of porcupine quils, cotton beds, domestic utensils -- in a word, all sorts of necessities of life required by them."

Such exchange is called barter, and even the simple barter described by Father Lafitan can lead to complex problems. How, for example, would an Indian who had tobacco to trade and wanted a buffalo hide make a deal with another man who had buffalo hides but wanted a canoe? What would be the price of a buffalo hide or tobacco?

We can see these problems clearer if we simplify the simple exchange system described by Father Lafitan. Suppose we had only five items to exchange by barter:

1. Tobacco
2. Robes
3. Canoes
4. Buffalo hides
5. Cooking pots

Draw a diagram showing how many prices there are for each item.

Frame 4

Imagine the following:

A has tobacco and wants cokking pots
B has a canoe and wants tobacco
C has cooking pots and wants buffalo hides
D has buffalo hides and wants a canoe

1. Assuming the quantity of the item is no problem, how many exchanges must A make in order to get the cooking pots he wants?

Number of exchanges ________________.

2. Assume that A could not store his tobacco and wanted cooking pots but none were available. What would he have to do?

3. Are there any difficulties or dangers to storing robes, canoes, or buffalo hides?

4. How, without adding any new items, would you improve the efficiency of this exchange system?

Frame 5

THE FUNCTIONS OF MONEY

Money is one of the basic inventions of mankind. In hundreds of societies, as exchanges have risen above simple barter, men have invented some form of money. And the more complex the exchanges of their society, the more efficient money has become.

Money has to fulfill three functions if it is to be completely efficient: (1) It must be accepted as a medium of exchange in all transactions; (2) It must serve as a unit of account and standard of value (that is, it must be possible to use it in bookkeeping and to express prices in terms of the money), and (3) It must be a store of value (that is, it must be possible to hold wealth in the form of money.)

These three functions were not necessarily all present in the money of all societies. The importance of these functions of money and their relationship to our own exchange system may be clearer if we look at some other kinds of exchange systems and money.

As recently as 25 years ago, the people of the South Pacific island of Yap were using big wheel-shaped stones as money. The stones ranged in diameter from the size of a dinner plate up to twelve feet, and their value depended upon size and the difficulty of manufacture. The stones had no use except as money although the islanders, understandably, liked to have them stand outside their houses for all to see.

Most of the trade of Yap took place in local markets and was carried out by barter, using shell money and a variety of commodity moneys including coconuts, tobacco, cups of syrup and baskets of taro (an edible root). The last two served as units of account. Small stone money was used in the market place and was given a value in terms of one of the commodity units of account.

The larger stones were used for more complex financial transactions. Debts were contracted in terms of stone money and stone money was lent out at interest, which was customarily paid in shell money. Stone money was also used for political payments such as those to another tribe in return for aid in an inter-tribal war.

The use of furs as currency by the Indians of North America is, by contrast, much easier to understand. Records of the Hudson Bay Company for the 18th and 19th century show beaver skins as the chief medium of exchange. A hundred years ago in Saskatchewan, a horse was reckoned to be worth about 20 beaver skins, a wolf skin ½ a beaver skin, a scalping knife 1, a silver or black fox 5. The year's business was commonly calculated in terms of beaver skins, with all other skins valued according to their equivalent in beaver.

1. Which of the functions of money do the coins and currency

of our economy fulfil?

(2) medium of exchange ....

(b) unit of account ....

(c) store of value ....

2. Which of the functions of money did the Yap stone money fulfil?

(a) medium of exchange ....

(b) unit of account ....

(c) store of value ....

3. Which of the functions of money did beaver skins fulfil?

(a) medium of exchange ....

(b) unit of account ....

(c) store of value ....

Frame 6

1. The silver, copper, and nickel alloys in our coins, and the paper upon which our money is printed, are worth much less as metal and paper than the coins and currency are in exchange. What gives our coins and currency their value as money?

2. What kind of money scarcity is more important in our own economy?

.....(a) The scarcity of precious metals such as gold and silver.

.....(b) The scarcity created by government power?

Frame 6 cont'd.

3. If you had a $20 gold piece, what could you buy with it?

4. If you had a $20 bill, what could you buy with it?

5. As the level of economic activity changes, the public's demand for money changes. This changes the relative scarcity of money. How is a constant degree of scarcity maintained?

Frame 7

QUALITIES OF MONEY

1. If everybody could have as much as he wanted of a commodity used as money, would the commodity be an efficient form of money? ______________

2. If a commodity used as money was in such short supply that there was not enough for use in the daily transactions of an economy, would the commodity be an efficient form of money? ______________

3. An early explorer in Abyssinia wanted to sell an injured horse. He found that the amount of local money (shells) he would receive would be so heavy that the cost of transporting the money to his destination would be more than the value of the money. Was this local money system an efficient one? ______________

Frame 7 cont'd.

4. In some societies in which cattle are used as money, there is a tendency to use only the poorer cattle as money, reserving the best beasts for use in the herd. When this happens, are cattle an efficient form of money? ________________

5. If a commodity used as money dies or crumbles to dust after a short time, is it an efficient form of money? ________________

6. Using your answers to the foregoing as a starting point, see how long a list you can make of the qualities which are desirable in money.

____

Frame 8

List the desirable qualities of money as decided in class discussion.

____

____

Frame 9

PURCHASING POWER

1. In our society, almost everything is bought with and sold for money. We can satisfy our wants by an exchange of money for the goods and/or services desired.

But does this mean that we can buy nothing unless we have the money?

No.

2. For almost all major wants we are continually being urged by advertisers to "get it now and pay later" by using our ....

credit. ("credit cards" is acceptable as an answer. However, credit cards is just one form of credit.)

3. Although money is required to satisfy wants, our ability to satisfy wants does not depend simply on the amount of "cash money" we have on hand. We can also borrow for present spending by pledging our future ability to repay. That is, we can use credit to gain command over money and then proceed just as if we started out with the coins and currency of a cash transaction.

Both individuals and businesses use this combination of cash and credit which we call purchasing power.

Suppose that you have $100 cash and no credit while I have $50 cash and can also borrow $60 from the bank. Who has the greater purchasing power?

I have. My $50 + $60 = $110 which is greater than your $100.

Frame 9 cont'd.

4. The greater our ability to command the use of money, the greater our ....

purchasing power.

5. Purchasing power is ....over...........

command over money.

6. Both individuals and businesses get purchasing power from the flow of money coming in. There are three sources of purchasing power: (1)income, (2)wealth, and (3)credit.

All three of these terms have precise meanings as used in economics.

For the time being we will define credit simply as the power to borrow money. More on that shortly.

Income is money received for some given period in return for providing productive services.

Wealth is a total stock of assets. (An asset is anything owned which has a value and which can be exchanged.)

Are the items in the following list examples of (a) income or (b) wealth?

1. A factory worker's weekly wage check.
2. A salesman's monthly commission.
3. A cash balance in a savings account.

1. (a); 2 (a); 3 (b).

Income is a flow of money over a period.

Wealth is a collection of assets. Some assets may be in a form very close to money (for example, the balance in a savings account) or they may be hard to exchange for money (for example, an office building).

7. Is the following an example of (a) income or (b) wealth? $100 interest on a savings account.

(a). Interest earned on a savings account is income because it is money obtained over a period in return for productive services. (For the bank, the use of your savings is as much a productive service rendered by you as is the use of your labor by an employer.)

8. Suppose you own $500 worth of a company's stock. Is the stock an example of (a) income or (b) wealth?

(b). If you own stock, you have an asset -- something which you own, which has value, and which can be exchanged.

9. Suppose you own a car and sell it. Is the money you receive (a) income or (b) wealth?

(b). It is wealth. You have changed the form of an asset by exchanging your car for cash. But the cash still represents wealth. It is not income (an incoming flow of money in return for productive services.)

Frame 9 cont'd.

10. In changing the form of an asset, have you changed your purchasing power?

yes.

11. The asset has been converted into the most readily useable asset -- money. Now, by a transfer of assets, you can increase your purchasing power.

This ....of assets .... (increases/decreases) your purchasing power.

transfer; increases.

12. To summarize: By exchanging your car for cash, you changed the form of an asset. As money, the asset could be transferred into purchasing power.

Label the following as (a) income, (b) wealth, or (c) neither:

1. The profits of a businessman.
2. The equipment in a factory.
3. Interest received on a loan.
4. A diamond ring.
5. Free accommodation received by an apartment manager.
6. Rental paid by the user of an office.
7. Proceeds from selling a savings bond.

Frame 9 cont'd.

1. (a)
2. (b)
3. (a)
4. (b)
5. (a) If he lived elsewhere, he would have to pay for his accommodation. He gets a room in place of a salary.
6. (c) This is an "outgoing," not a part of income, so far as the person paying is concerned.
7. (b) This involves exchange of an asset. The new asset is in the form of money and can now be converted into another form of asset if desired.

Frame 10

Write in your version of the following definitions:

(a) Income

Your version: ....

....

Teacher's version: ....

....

(b) Asset

Your version: ....

....

(c) Wealth

Your version: ....

....

Teacher's version: ....

....

Frame 10 cont'd.

(d) Purchasing power

Your version: ....

....

Teacher's version: ....

....

Frame 11

ASSETS & LIQUIDITY

Assets are classified according to the ease with which they can be exchanged for money. The term used to describe the relative ease with which an asset can be exchanged for money is liquidity. Liquidity depends upon (a) the time, and (b) the trouble it takes to convert the asset into money. The easier it is to exchange an asset for money, the more liquid it is said to be. Assets which are extremely difficult to exchange are called non-liquid assets.

(a) Number the following assets to show the order from most liquid to least liquid:

______ an apartment house

______ a bottle of coke

______ a ten-dollar bill

______ a herd of beef cattle

______ the San Francisco Giants

______ the ocean liner, "Queen Mary"

(b) What is the most liquid of all assets?

....

(c) In the list of assets above, which, if any, are non-liquid assets?

Frame 12

1. Why is credit a part of our economy?

2. How is credit used in our economy
   (a) by business?

   (b) by individuals?

Frame 13

CREDIT

The use of credit is far from being a modern invention. In fact, credit figures importantly even in primitive societies which have not invented the use of money.

In some societies, credit undoubtedly began with the need to distribute obligations for safety in time of need. For example, a New Zealand Maori might, at the appropriate season, send a bird to someone living at a distance in a region short of meat. Later, during the fishing season, when his own meat supply was short, he might expect to get back a fish. This was not just an exchange of gifts, since those concerned kept account of these exchanges.

In other simple societies, extensions of credit were a matter of business and more closely resembled credit as used in our society. That is, credit was an advance of purchasing power, loaned against a future ability to repay the debt. In nearly every case, the interest rate was exhorbitant by our standards. An interest rate of 100 per cent for a year was common and in some cases the borrower would have to pay back three or four times the amount borrowed.

Among the Ifugao of the Philippines, even in recent times, a debt not repaid could double in size each year so that it was eight times the original size by the end of the fourth year. A chicken borrowed quickly became a buffalo owed! Debts like this were not cheerfully repaid and often a lender would have to call upon physical or even supernatural means to collect -- an expensive procedure.

Frame 14

1. The basis of credit is ....

Explain:

Frame 15

List below at least five different kinds of institutions that provide credit. For each kind of institution, indicate whether it serves individuals and/or businesses; state the purpose for which it will provide credit. (Newspapers, magazines, and the yellow pages of the phone book are good sources of this information.)

In addition, either clip or take notes on the interest rates charged by at least one of these institutions.

Institution	Serves	Purpose for which it provides credit

Frame 16

Definitions, Group I

Financial asset: Money or other assets of high liquidity, such as:

(a) currency or bank balances.

(b) bonds -- long-term loans on which a company promises to pay interest and also to return principal from expected profits over some given period.

(c) stock certificates -- certificates of ownership issued to those who buy a part ownership of the company.

Financial liability: The opposite of a financial asset. When a loan is made, the money, bond, stock certificates, or other evidence of the loan becomes an asset of the lender and a liability of the borrower.

Financial investment: The purchase of financial assets.

Financial capital: Same as financial asset; financial wealth.

You may not be completely familiar with the above definitions, but they probably contain no surprises. Compare them with the definitions in the next group.

Definitions, Group II

Capital: (Write in the definition of capital given in Lesson 1) ....

....

....

Frame 16 cont'd.

Real investment: Purchase of new capital goods or improvement of an existing factor of production so as to maintain or increase productive capacity.

Real capital: The assets or wealth represented by capital goods or improvement in factors of production.

Frame 17

INVESTMENT BANKS

The world of finance is like an iceberg in that what appears on the surface is only a small part of the whole. We see around us and make use of financial institutions such as commercial banks, credit unions, and retail credit. But there is another part of banking which quietly, and with great efficiency, handles billions of dollars every year in transactions which pass unnoticed by most of us. This is investment banking. We want to say briefly what investment banking is and how it works.

The vitality of our economy depends on money being put to use. For most of us, a large part of current income does get used right away in consumption of goods and services, but often we manage to put aside some of our income as savings. Usually, we save simply to spend later, to buy or perhaps to make a down-payment on some wanted good or service. In the meantime, if our savings are deposited with some institution, somebody else is making use of them through credit. The pattern of month-to-month

Frame 17 cont'd.

transactions of business firms is much the same. They may save at one period and borrow at another to keep their financial affairs in balance. All of these transactions are relatively short-term, however, and they take place in what economists call the money market -- the market served by commercial banks and the other familiar institutions.

But there is another market (called the "capital market,") which is concerned only with large sums of money used for long-term purposes. This is the market in which private enterprise and government raise the large sums they need for capital expenditure, such as construction or buying new machinery. This is the market served by investment banks.

Investment banks (or investment houses, as they often are called) make use of what might be called permanent savings, if we contrast these savings with the temporary savings of most indivduals and the routine affairs of business. Permanent savings come from individuals and groups which have funds that exceed their capacity to consume.

The financing of business as carried out by investment banks can be extremely complicated, but in simple terms this is how it works: Let's say that the ABC company wants $1 million to expand its productive capacity. It

Frame 17 cont'd.

convinces an investment bank that this is a reasonable thing to do. The bank pays the company $1 million and receives in return a certain amount in securities such as bonds and stock. (The money may have been provided by the bank itself or it may have come from a group of investors formed by the bank.) The bank may then sell the securities directly to the public, or, more likely, it will sell them to brokers who, in turn, will sell to the public. The bank makes its profits by selling the securities for more than it paid the company.

Note that the money received by the ABC Company is the amount provided by the bank. And as far as getting capital is concerned, that is the end of the transaction for the company. Its stock may be traded on, say, the New York Stock Exchange for a higher amount than the company received, but it does not change the amount of the capital. The changed price of the stock simply reflects what someone is willing to pay for a share in ownership of the ABC Company.

What does the investment bank do beyond raising the initial money paid to the company? Well, investment banks are skilled in the sale of securities. An investment bank may buy a company's entire issue of securities and take over responsibility for selling them to the public. In such an operation, the bank gives the company immediate

Frame 17 cont'd.

use of capital, the benefit of an experienced sales and distribution staff, advice on the kinds of securities to issue and, often, continuing advice in financial matters.

Frame 18

1. Suppose you have a savings account on which you receive quarterly interest payments.

True of false?

______(a) You have provided credit to the savings bank.

______(b) Your passbook is evidence of your financial asset and the bank's financial liability.

______(c) Your passbook is evidence that you have made a real investment.

______(d) If you withdraw money from the bank and use it to buy a sweater, you have made a real investment.

______(e) If you withdraw money from the bank and use it to pay college tuition, you have made a real investment.

2. True of false? Real investment is one of the basic ways of solving the scarcity problem. ____________

Explain your answer:

Frame 19

CREATING CREDIT

1. List as many forms of credit as you can think of:

   (a) Individual credit

   (b) Business credit

Frame 20

1. List the three functions of money:

   (a)..

   (b)..

   (c)..

Frame 20 cont'd.

2. For each form of credit listed in the previous frame, indicate by writing the letters (a), (b), or (c) against it which of the functions of money it performs (if any).

3. Credit can be categorized as either:

General credit: Access to money for use in a wide variety of exchanges.

Specific credit: Access to money or to exchange for specific purposes.

(a) Of the forms of credit you listed in Frame 20, which are specific?

Which are general?

(b) General credit cannot be used for which of the functions of money?

(c) Specific credit cannot be used for which of the functions of money?

Frame 20 cont'd.

4. Of all the forms of credit listed in Frame 20, which comes closest to having all the functions of money?

5. Is the credit card an example of man's attempts to develop more efficient methods of exchange?

Frame 21

TRUE INTEREST RATE

Credit is a useful way of extending purchasing power and few people go through life without making use of it. Even the most cautious find that they have to use credit for major purchases such as houses and perhaps automobiles. But credit has its price, of course, like any other scarce resource. National surveys have shown that most people have little idea of the true cost of credit. In large part, this is because there are many ways of quoting interest rates. Often, it is hard to tell just by looking or listening what the true interest rate is. Almost certainly, it is not the figure quoted by the lender.

For example, a bank might quote an interest rate of 5 per cent for car loans. If you go to borrow, say $1000 at 5 per cent and plan to repay in monthly installments over a year, the lender may calculate:

Frame 21 cont/d.

Loan: $1000

Interest, 5% for 1 year = 1000 x 5% - $50

Total to be repaid = principal + interest

= $1000 + $50 = $1050

Monthly payments = 1050/12 = $87.50

Do you see why 5 per cent is not the true interest rate?

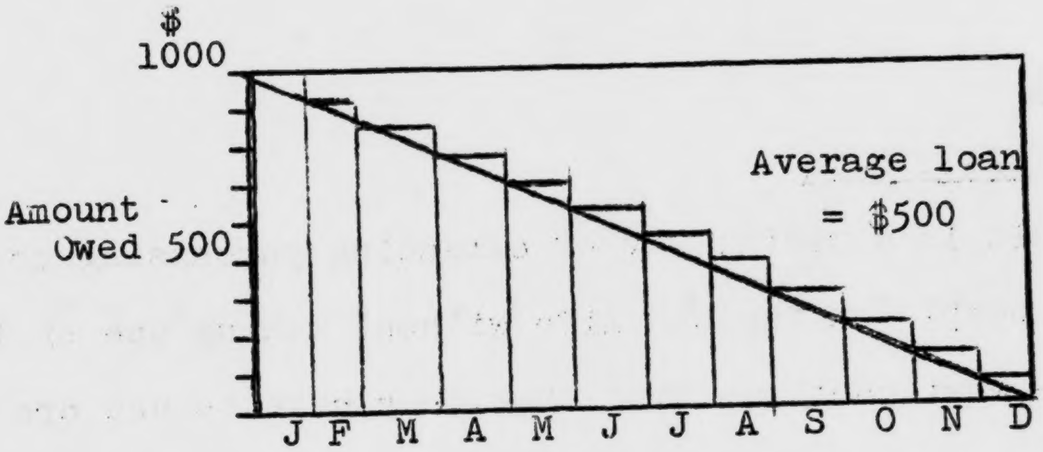


Fig. 1

The 5 per cent is figured on the total amount borrowed. But the amount you are borrowing actually decreases each month as you pay off both interest and loan. After six months, you will have repaid half the sum you owe. After 12 months, you will owe nothing (see Fig. 1 above). Thus, over the period of a year, you actually borrowed an average of $500. And interest of $50 for borrowing an average of $500 for a year is a true interest rate of about 10 per cent.

For loans of this kind, then, your true interest rate is approximately double the rate quoted.

It makes sense to shop for credit, just as you would

Frame 21 cont'd.

shop for any other major purchase, but with all of the various ways of describing interest, you may find you need a more precise way of calculating true interest rate. There is a formula you can use. It is:

$$\text{True interest rate} = \frac{2 \times M \times L \times 100}{P\ (N + 1)}$$

in which M = number of payment periods per year

L = cost of financing loan (total payments - principal or total to be paid - cash price)

P = amount advanced (principal, or balance due after down payment)

N = number of installments to be paid

Why go to the trouble of figuring it out? Well, look at these figures:

Loan	Period	Monthly payments
$800	9 mos.	$91.11
$1000	12 mos.	86.95
$1200	15 mos.	85.33

Which loan has the highest true interest rate?

Let's figure the true rate for (b), the $1000 loan, using the formula:

First, we figure total payments

12 mos x $86.95 = $1043.40

Which gives us the cost of the loan (L) as

$1043.40 - $1000 = $43.40

Then the true interest rate is

$$\frac{2 \times M \times L \times 100}{P\ (N + 1)} = \frac{2 \times 12 \times 43.40 \times 100}{1000 \times 13}$$

Frame 21 cont'd.

$$= \frac{104.16}{13} = 8\%$$

Now you figure the other two:

(a) Total payments

9 mos. x $91.11 = $

Cost of loan

$ - $800 = $ (to nearest $)

True interest rate

________________________ = %

(c) Total payments

15 mos. x

Cost of loan (to nearest $)

True interest rate

The loan with the highest true interest rate is

....

The loan with the lowest true interest rate is

....

Frame 22

(see p. 29)

Frame 22 - Types of Loan, Requirements & Interest Rates of Financial Institutions

Financial Institution	Loans to Individuals							
	Direct Money		Goods & Services on Installment		Credit Cards		Homeowners	
	Requirements	Nat. Rate	Requirements	Nat. Rate	Requirements	Nat. Rate	Requirements	Nat. Rate
Commercial Banks								
Savings & Loan Assoc.								
Credit Unions								
Investment Banks								
Insurance Companies								
Finance Companies								
Pawn Shops								
Merchants								

TYPES OF LOAN, REQUIREMENTS, & INTEREST RATE OF FINANCIAL INST.

Financial Institution	Loans to Business			
	Short-term		Long-term	
	Requirements	Int. Rate	Requirements	Int. Rate
Commercial Banks				
Savings & Loan Associations				
Credit Unions				
Investment Banks				
Investment Companies				
Finance Companies				
Pawn Shops				
Merchants				

Frame 23

A CASHLESS SOCIETY

Scientists are apt to claim that the advances of the last 20 years in the physical sciences exceed those of the whole earlier span of civilization. While economists usually content themselves with less dramatic comparisons, there is no doubt that some aspects of credit are changing rapidly. The concepts of credit have been used for thousands of years, but the growth of credit has accelerated over the past 150 years, particularly with refinements introduced since the turn of the century. And in the last 10 years, with the widespread adoption of the credit card, credit has expanded enormously. Today, we all carry money. By the time today's teenager is middle-aged, it is likely that our pockets and purses will no longer jingle; money will have been replaced entirely by the credit card.

One bank official was recently quoted as saying that the U.S. is already "a long step toward a cashless and checkless society." He has a point. Already, some 70 banks, the national crědit card organizations, the major gas companies, and hundred of retail merchants issue credit cards. A new development is credit cards that cover all of the services of a particular shopping center. They make it possible to gas up the car, buy the week's groceries, eat lunch, and visit the beauty or barber shop, all in a single, no-cash, charge-it-all visit.

Frame 23 cont'd.

Someone has to pay for all this credit, of course. Sometimes it is the user of the credit card, sometimes the seller. Sometimes a retailer is willing to carry the cost himself for the first month because of the added business that credit attracts. And make no mistake about it, the credit card is big business, billions of dollars worth every year and growing fast.

Not everybody is happy about the "get it now and pay later" aspects of the credit card. The magazine "Time" reports that in Seattle, 15 restaurants, tired of the deferred payments and the charges of some national credit card plans, decided to find a way of getting their money faster and at a lower collection cost. Their solution: They issued their own credit card and arranged for fast payment through cooperating banks.

One expert has gone so far as to forecast that the use of coins and currency will amost disappear from our economy before long. He believes that present trends will continue to the point where each person will have a bank account handled by a nation-wide computer system.

If you work for a company, he says, your income will be automatically credited to your account. If you want to buy something in a store, you will do it with a credit card which, when inserted into a reading device, will

Rrame 23 cont'd.

transfer the amount from your account to the store's. If your purchasing power (that is, the funds in your account plus your credit) is not enough for the purchase, presumably the computer will refuse to complete the transaction.

1. Is this last prediction ridiculous? What features of such a computerized system are already in being?

2. What are the implications for the teenagers of the future? Will they, for instance, find it easier to obtain credit than do present-day teenagers?

LESSON 4 - ECONOMIC SYSTEMS **STUDENT WORKSHEET**

Economics is the study of how people organize to use scarce resources to satisfy their wants. This organization is called the Economy of society. Economics is really the study of economies.

The purpose of this lesson is to help you figure out a general way of studying the economy of a country or a society. We will do this by studying the economy of a fairly simple society of people (the Tsimshian Indians in the early 19th century); then by trying the same procedure to summarize what we know about the U.S. economy; and finally, by analyzing the similarities and differences between the two economies to come up with a general procedure for studying the economy of any society or country.

FRAME 1

REVIEW FRAME

The previous lessons provide important clues about what is meant by the economy of a country, and how to study a country's economy. A brief review of major conclusions of each of these lessons is important. Complete the sentence in the following summary.

Conclusions from Lesson 1.

The central problem in economics is the existence of ________________ which is defined as ____ ________________________. The general way people have tried to cope with this problem was summarized in Lesson 1 in the ____________ ____________________________ __________. Five types of solutions to the problem are: (1) ______________________________________; (2) ______ ________________________________; (3) ______________________________;
(4) ______________________________________; (5) ____________________.

Conclusions from Lesson 2.

Greater production efficiency has been achieved by man through three types of________________________________. They are:

(1) ____;
(2) ____;
(3) ____.

Conclusions from Lesson 3.

In an industrialized society people become more and more dependent on each other because in order to satisfy their wants people must e__________ their productive services for ___________which they then use to buy want satisfying goods and____________. A person's ability to satisfy his wants depends on ______________________________________. The necessity to engage in e______ _________ is a necessary outgrowth of ______________________________________.

FRAME 2 NOTES ON THE TSIMSHIAN ECONOMY

Please read the essays on the Tsimshian Indians which your instructor has distributed. As you read the essays, write down in the space below a list of those parts of Tsimshian life which you think are part of Tsimshian economic life and of the Tsimshian economy. For each item you write down try to state briefly why you think it involves economics. (Don't forget to study the want-satisfaction table at the end of the readings), Before you come to class tomorrow try to summarize your thoughts by listing the general types of things you think you would describe in a study of the Tsimshian economy.

Space for your specific list of things which represent Tsimshian economic life or the Tsimshian economy.

Space for your list of general things to study about the Tsimshian economy.

FRAME 3 THE BASIC FEATURES OF TWO ECONOMIES

Follow instructions given by your teacher in completing the summary description of the U.S. and Northwest economies.

Summary Table Describing the Basic Features
of the early 19th Century Northwest Indian
Economy and the Modern U.S. Economy

I Basic Features of an economy	II Description of these features in the Northwest Indian Economy	III Description in the Modern U.S. Economy

I Basic Features of an Economy	II Description of these features in the Tsimshian Indian Economy	III Description in the Modern U.S. Economy

I Basic Features of an Economy	II Description of these features in the Tsimshian Indian Economy	III Description in the Modern U.S. Economy

I Basic Features of an Economy	II Description of these features in the Tsimshian Indian Economy	III Description in the Modern U.S. Economy

FRAME 4 A SUMMARY OF DIFFERENCES BETWEEN THE TSIMSHIAN AND CONTEMPORARY U.S. ECONOMIES

Go through your notes from Frame 3 and in the space below list the main differences between the Tsimshian and U.S. economies.

Summarize these differences by listing the six or seven characteristics of the Tshimshian economy which represent the major differences between the two economies.

1.

2.

3.

4.

5.

6.

7.

SOCIAL FORCES AFFECTING TSIMSHIAN ECONOMY

Tradition, command and market forces all affected the economic activities and decisions of the Tsimshian. In column I of the table below there is a list of types of economic activities and decisions, and in column II one of the three social forces is listed. In column III write and example from Tsimshian life which shows the importance of the social force stated in column II on the activity listed in column I.

I Type of Economic Activity or Decision	II Social Force	III Your Example
1. Consumption	tradition	Salmon and other fish were the main source of food.
2. Production	tradition	
3. What to produce	command	
4. What to produce	market	
5. Exchange	tradition	
6. Exchange	market	
7. How to produce	market	
8. How to produce	command	
9. How to produce	tradition	
10. For whom to produce	tradition	
11. For whom to produce	command	
12. How much to produce	tradition	
13. How much to produce	command	

FRAME 11

DEFINITION OF ECONOMY AND ECONOMIC SYSTEM

A. After class discussion, complete the following statements which explain why an "economy" is an economic system.

An economy is a system of ____________ ______________________.

The word system means ____.

A group of things (say, a transportation system) is a system rather than merely a set of things if ________________________________

Give at least two examples of systems in the space below:

Give at least two examples of a set of things in the space below:

An economy is a system of ____________ ____________________ because

For example, the Tsimshian economy is better described as a system of local clan groups than as a set of local clan groups because ______

____

B. Write one or two definitions of the word "economy" or "economic system".

Your Definition:

Class's Definition: (After class discussion of this frame, the class will arrive at a definition with which everyone agrees. Write it down here).

FRAME 6

FIVE BASIC ECONOMIC ACTIVITIES

List the five basic economic activities and for each activity explain in one sentence how it is an economizing activity.

1.

2.

3.

4.

5.

FRAME 7

SAVING AND INVESTMENT

In the table below, column I lists typical activities in the Tsimshian and U.S. economies. In column II state whether you think the activity represents saving, investment, or both. In column III give your reasons.

I Economic Activity	II S, I, S & I	III Four Reasons
1. U.S. family buys 1 gov't bond/mo. out of father's pay.		
2. Tsimshian store candlefish oil.		
3. A local foundry in the U.S. uses profits to build new plant.		
4. Same foundry uses profits to buy gov't bonds.		
5. A Tsimshian chief hires men from other clans to build a new house.		

FIVE BASIC ECONOMIC ACTIVITIES

Column 1 in the table below contains examples of various human activities. In column II check those items which are economic activities. For the items checked in column II write which of the five basic types it is in column III.

I Human Activity	II Economic Activity	III Type of Economic Activity
1. canoe construction	X	investment
2. ceremonial dancing		
3. making ceremonial masks		
4. river or ocean bathing		
5. berry gathering		
6. marriage potlatch		
7. indian children at play on the beach		
8. producing smoked salmon for the winter		
9. fasting, ritual bathing and seclusion of pubescent girls		
10. religous ceremonies		
11. trading oil for buckskin		
12. whale hunting		

FRAME 9

FOUR BASIC ECONOMIC DECISIONS

Column I of the table below contains examples of human decisions. In column II check the examples which are economic decisions, and in column III state what type.*

I Human Decisions	II Economic Decisions	III Type of Economic Decision
1. Chief chooses a wife	X	
2. Chief orders group to break fishing camp for winter quarters.		
3. Chief hires canoe builder.		
4. Indian brave gives half his catch to his chief.		
5. Chief chooses a nobleman to offer himself to another tribe which is avenging the murder of one of their noblemen.'		
6. Chief declares war to avenge insults.		
7.		
7. Chief organizes a whaling party		
8. Woodcarver designs a mask		

* Decide whether or not the decision is economic on the basis of the motivation for making the decision - why for for what reasons the decision is made.

IMPORTANT U.S. ECONOMIC INSTITUTIONS

Column I of the table below lists different social institutions in the U.S. In column II check those which are primarily economic institutions and, in column III list the major type(s) of activity in which it engages.

I Social Institutions	II Economic Institution	III Major Type(s) of Economic Activity
1. Local church		
2. A mining company		
3. a small family farm		
4. a credit union		
5. The American Legion		
6. An urban working class family of 4		
7. A restaurant		
8. the P.T.A.		
9. The Democratic Party		
10. The U.S. Armed Forces		
11. The U.S. Post Office		
12. The Executive Branch of the federal government		

FRAME 12

SOCIAL ORGANIZATION OF THE TSIMSHIAN

During the class discussion on the social organization of the Tsimshian, fill out the Table below.

Social Organization of the Tsimshian

Types of Social Groups	Composition and Organization of the Group

EXCHANGE DIAGRAMS OF THE TSIMSHIAN ECONOMY

As diagrams are developed in class copy them in the spaces provided below.

a. Diagrams of the Major Types of Barter Exchange

B. Diagrams of the Major Types of Potlatch Exchange

C. Diagram Summarizing the Potlatch Exchanges Between Clans Throughout the Life Cycle of a Local Clan Chief

D. What is the difference between barter exchanges and potlatch exchanges?

E. Why do these diagrams summarize the economic system of the Tsimshian?

LESSON 4 ECONOMIC SYSTEMS

ECON 12

SOCIAL ORGANIZATION

Introduction to Student Reading

The western coast of North America from the California-Oregon border to southeastern Alaska was once the home of a people who had what was probably the most highly specialized and wealthy non-agricultural primitive society known.

The geography and climate were important factors permitting the high degree of cultural development. The range of coastal mountains that forms a four to five thousand foot backdrop to the shoreline prevents the warm air brought by the Japanese Current from traveling inland; instead the coastal area is warmed by the current and finally drenched when the warm vapor, forced upward by the mountains, turns to rain. Annual rainfall often exceeds more than 100 inches. Heavy rains and moderate temperatures form a climate favorable for the growth of tall trees and the country is covered with stands of fir, spruce, red and yellow cedar and, in northern California, the famous redwood.

While mountains made overland travel to the interior almost impossible, the absence of many rivers flowing out to the coast made inland travel a rarity. On the other hand, there are many deep cuts into the land mass; the banks of these narrow fjords are steep so that coastal travel by water was easy and safe. Furthermore, the many protective offshore islands and the narrow sounds permitted adventurers to range long distances along the coast.

The ocean, rivers and streams abounded in a variety of sea life. Salmon was king. Even today, when modern fishing methods have drastically depleted many rivers and streams, a salmon run is a spectacular sight. What was it like two hundred years ago? We are tempted to believe the informat who told an anthropologist that it was possible, when the salmon were churning upstream to spawn, to cross a river by walking on their backs. In addition to five species of salmon, there was halibut, herring, cod, smelt and candlefish (olachen) from which was extracted an oil enjoyed for its taste and widely used as a preservative. This fish is so swollen with oil that if you put its tail in the ground and light its mouth, it will burn just like a candle.

Here men knew how to fish. Salmon were harpooned, netted, caught in river weirs (box-like forms made of reeds and withes) and with hook and line, trapped in tide-pool weirs and even clubbed on the head. And not only was salmon plentiful, it was easily preserved and stored after smoke-drying. Drucker states that in a few days a man could catch and his preserve enough salmon to feed his family for months.

Sea mammals were sought out by hunting parties usually led by the chief of the local clan group. Whales, seals, sea lions, porpoises and sea otters were luxury foods with valuable hides and pelts. A wide variety of game lived in the forest, but the rugged terrain and thick foliage made tracking and transporting difficult. A kind of vegetable-substitute was found in roots and inner barks, but everyone's favorite food was berries. Several kinds of berries grew wild all along the coast. As with fishing, hunting and shell gathering, berry-picking was restricted by property rights.

The North Pacific Coast tribes achieved a high degree of success with woodworking. Loggers, carpenters, artists and canoewrights had a variety of tools: adzes(heavy chisel-like tool), hammers, chisels, drills, mauls, sanding equipment. At the winter village, the indians built solid plant houses. Dugout canoes were made by specialists who, using fire as a tool, hollowed out cedar and redwood logs. Household utencils, musical instruments and ceremonial masks were carved. And of course there were the "totem" poles.

Weaving was an important craft, and baskets were made for storing while hats of basketry were made to cover head and shoulders against all that rain. Other clothing included water-repellent capes and robes. These garments were made by tying strips of tree bark together. Strips of fur were often sewn along the edges to make these garments more comfortable. Some few tribes had a tradition of weaving elaborate robes (the "Chilkat blanket") and a few others from the northern areas traded olachen grease with tribes from the interior in exchange for buckskin shirts, trousers and moccasins.

A few "notes"

1. At this point it would profit you to examine the want-watisfaction chart at the end of chapter three; then turn to the next page and read the excerpts from Drucker's chapter on social organization.

2. Although the Tlingit, Haida and Tsimshian -- the groups inhabiting the northern province of this area -- were similar in physical build (large, broad heads, long arms and legs, relatively short trunks and of medium height) it is language divisions that are most helpful in discussing cultural

differences. Since local groups were small and numerous, it is more convenient to use linguistic groupings when describing local life.

3. The smallest unit of social organization was not the nuclear family (our family) but the extended family, or what Drucker refers to as the local clan group. (All Tsimshian, for example, were members of one of four clans.) The local clan group was completely self-sufficient and free to make all decisions regarding war, ownership, work, marriage, etc. A local clan group consisted of a number of related families; the oldest competent male in the group was usually the chief. This extended family could include twenty to fifty people and all living under the same roof.

When several neighboring clan groups decided to live in the same winter village there was formed what ethnographers who studied the area call a tribe.

4. Keep a glossary of anthropological terms (and other new words) that are not defined to your satisfaction in the lesson.

The readings that follow were taken from

Philip Drucker, Cultures of the North Pacific Coast, Chandler, San Francisco, 1965

Social Organization--page 47, lines 12-27

Social Divisions--page 47, lines 28-36; page 48; page 49, lines 1-11.

Function of Wealth--page 49, lines 12-35; page 50, lines 6-8, 17-38; page 51, lines 1-9.

Slavery--page 51, lines 23-35; page 52.

Marriage--page 53; page 54, lines 1-24.

The Potlatch--page 55; page 56, lines 1-23.

The Formalities of the Potlatch--page 56, lines 24-35; page 57, lines 1-33; lines 19-38; page 59, lines 1-8, page 60, lines 11-38.

Polity and the Law,--page 70, lines 7-16

Alliances--page 70, lines 17-30.

[redacted]

WANTS	OUTPUT (want-satisfiers)	INPUTS	PRODUCTION	
Food	halibut salmon cod herring candlefish candlefish oil	nets hook & line weirs canoes	FISHING OIL RENDERING	M
	sea otters porpoises (whales)	canoes harpoons nets	sea HUNTING harpooner was specialist	M
	Deer elk caribou, etc.	traps dead falls	land HUNTING	M
	roots bark berries mollusks	patches with wild vegetation	food GATHERING	W
	smoked fish berry ("preserves")	oil Heat (firewood)	wood GATHERING food PRESERVING	M&W W
	Meals		food PREPARING	W
Clothing (essential)	robes capes blankets aprons (buckskin shirt & trousers) hats	cedar bark (dog wool) grasses bark skins hunters	tree STRIPPING TREATING bark FLEECING grass gathering WEAVING	 M W W
(ornament)	necklaces pendants combs anklets tattoo face & body paints	shells wood bone furs paints: grease carving	shell GATHERING wood & bone CARVING TATTOOING	M&W M M
Shelter	houses av.size: 50' x 55' ; 40'x100'	wood wood-working tools timber	LOGGING CARPENTRY HOUSE-BUILDING	M
Transport	canoes paddles	wood w-w tools fire craftsmanship	CANOE-MAKING	M

EXCHANGE (between tribes) or (between households)	LOCAL DISTRIBUTION (within household)
The Haida exchanges canoes, carved boxes, dried halibut and chewing tobacco for much desired candlefish oil; they traded with the Tsimshian who had a monopoly of the river where these fish abounded. (Tsimshian later took the oil inland to trade for furs, dressed deer, moose skins and porcupine embroidery. The Tlingit,(mainly of the mainland) were in frequent communication with their neighbors, particularly for trading. Coastal groups sought dressed deer and moose hides, ermine pelts, tailored skin clothing, coppers and jadeite for celt blades.	Fishing and hunting undertaken by individuals, half of the catch for the fisherman's family, half turned over to the chief or his "numaym." The chief of the local clan was responsible for the economic well-being of everyone who lived in his house. However, each individual family within the numaym managed for and by itself in making meals, clothing and taking care of daily needs.
Tlingits had no red or yellow cedar trees and so traded to obtain this vital commodity.	Produced by individual nuclear family for their own use.
Chief hired labor (on occasion) and payed them in blankets (barter).	Project undertaken by the chief of the numaym for all individual (nuclear) families in it.
Canoe-maker hired helpers for initial cutting, turning of log, carrying; paid them in blankets (barter).	Property of the numaym

WANTS	(want-satisfiers) OUTPUT	INPUTS	PRODUCTION	
WEAPONS	bow & arrow	wood, string		
	pikes	wood		
	clubs	wood		
	slings	skin, vines		
	daggers	bone, wood, iron	WEAPONS MANUFACTURE	M
	(wooden)	twigs, wood		
	helmets	wood		
	armor	twigs, rawhide		
TOOLS	adzes	wood, shells		
	wedges	horn, bone		
	hammers	beaver incisor		
	drills	iron	TOOL MAKING	M
	knives	iron		
	sanding equip.	dogfish skin		
HOUSE-HOLD GOODS	utensils for			
	cooking &		COOKING	
	weaving (looms)	wood		
	bowls, etc.			W
	boxes	reeds, bark, roots		
	baskets	weavers	WEAVING	
	mats	cedarbark, reeds	SEWING	
MUSICAL INSTRU-MENTS	drums	wood, skins		
	rattles	wood	INSTRUMENT MAKING	M
	whistles	wood, shells		
CEREMO-NIAL	masks	wood		
	crests - names	tools		M
	feast dishes			
	ceremonial blankets			W
	titles(story)	story makers		
	dances	dancing "lessons"		
	potlatch	food, gifts-includes...	specialists:	
			SPEAKERS	
			TALLY KEEPERS	
			USHERS	M
			SINGERS	
			DANCERS	
	coppers	metal carving	METAL WORKING	
	totem poles	wood	CARVING/PAINT	

GENERAL DISTRIBUTION

EXCHANGE (between tribes or between households)	LOCAL DISTRIBUTION (within household)
Iron? no one knows, probably traded	Individuals made their own weapons & armor.
Iron?	Same?
hire woodworkers?	
?	
Names and crests sometimes given by girl's numaym to groom for their offspring (as "repayment" of the bride price Exchanged via potlatch: food, oil, canoes, ornaments, blankets, furs, coppers coppers widely traded throughout area.	Though chief received ceremonial gifts, they were owned corporately by the household.

While Drucker discusses the civilization of the Indians of the Northwest Coast in terms of similar cultural patterns in chapter three, he later distinguishes four subareas according to local specializations and gives us a closeup view of life in each of four provinces. The excerpts below, taken from chapter six, "The Opulent Tsimshian," is typical of life in the northern province.

The Tlingit occupied the northernmost territory - that of the Alaska panhandle. The Haida inhabited part of Prince of Wales Island in Alaska and Queen Charlotte Island in Canada, and the Tsimshian lived south of the Tlingits, controlling the area of the Nass and Skeena Rivers.

The Coastal Tsimshian division of the groups speaking the Tsimshian tongue consisted of fourteen tribes living along the lower Skeena River.

The readings that follow were taken from

Philip Drucker, _Cultures of the North Pacific Coast_, Chandler, San Francisco, 1965

The Year's Cycle—page 116, lines [illegible]; page 117, lines 1-[illegible], 11-[illegible]; page 118; page 119, lines 1-7.

Houses—page 119, lines [illegible]-35; page 120; page 121, lines 1-11.

Clan Organization—page 121, lines 12-[illegible]; page 12[illegible], lines 2[illegible]; page 124, lines 1-1[illegible].

Potlatches and Life Crises—page 124, lines 1[illegible]; page 125, lines 1-3; 12-3[illegible]; page 126; page 127, lines 1-1, 30-[illegible].

Art—page 13[illegible], lines 19-20; page 131, lines [illegible].

Susan Feldmann, ed., _The Storytelling Stone, Myths and Tales of the American Indians_, Dell, New York, 1965

"The Theft of Light"—p. 97-[illegible].

"How Raven Helped the Ancient People"—p. [illegible]-9.

LESSON NO. 5

STUDENT WORKSHEET

CIRCULAR FLOW DIAGRAM AND MODEL

In this lesson you will do the following things to further your understanding of the subject matter and methodology of economics. You will :

1. derive an exchange diagram for the U. S. economic system called the circular flow diagram (it describes the exchanges between the major production and consumption units of the economy);

2. use the circular flow diagram as a basis for comparing our economy with the Soviet economy and the Tsimshian economy;

3. expand the definition of economics to include a study of the operation of the economy as a complete system;

4. see how the circular flow diagram can be converted into a model of the U. S. economy;

5. learn to use this model to explain certain important features of the U. S. economic system.

The following Frames will be used as homework and classroom activities to help you develop your first model of the U. S. economy.

FRAME 1 Notes on Constructing an Exchange Diagram for the U. S. Economy

A. What are the major U. S. economic institutions and what are their functions?

B. What are the main exchanges between producing and consuming institutions in the U. S. ?

FRAME 1 - contd.

C. Diagram these exchanges

D. What do these two diagrams show about the dependence between firms and families?

E. Consolidate the two diagrams in "C" above into one diagram which shows the circular dependence between firms and families.

PRIVATE FIRMS
(Producers)

FAMILIES
(Consumers)
(factor owners)

F. This diagram is called a circular flow diagram.
(a) why circular?

(b) why flow?

G. What exchanges are not shown in the circular flow diagram?

FRAME 1 - contd

H. Define: factor market.

I. Define: product.

J. Draw a circular flow diagram showing factor and product markets.

K. Draw a circular flow diagram which includes the government.

PRIVATE FIRMS	GOVERNMENT AGENCIES	CONSUMERS

FRAME 2

A. How do you know from the diagram that there is private property?

B. How do you know from looking at the diagram that there is production specialization?

C. What are the major economic activities shown? ____________________,

______________________________, and ______________________________.

Which are missing? ____________________ and ____________________.

D. What major economic institutions of the U.S. are missing from the diagram? ______________________________ and

______________________________.

E. What major exchanges between economic institutions are shown?

1.

2.

What major exchanges between economic institutions are missing?

1.

2.

3.

F. Does the diagram do the following? If so, explain how.

1. Describe what is produced.

2. Describe how goods and services are produced.

3. Describe how output is distributed.

4. Describe how much output is produced.

FRAME 2 - contd.

G. Check the items below which are considered family income in the circular flow diagram.

___1. wages

___2. income from selling your house

___3. money received as a gift

___4. Dividends from owning corporate stocks

___5. rent income to the owner of a factory

___6. money collected from an insurance policy

___7. Store manager's salary

Why are the non-checked items not considered income?

H. For the items below, which are exchange institutions in either a product or a factor market? Write whether the institution operates in a product or a factor market.

__________1. The Teamster's Union

__________2. Ford Motor Company

__________3. Your local Ford dealer

__________4. The local beer distributor

__________5. the Milkman

__________6. a Real Estate Agent

__________7. Farmer

__________8. an Employment Agency

FRAME 3 EXCHANGE DIAGRAM FOR THE SOVIET ECONOMY

A. After the diagram is developed in class, copy the exchange diagram for the Soviet economy in the space below. Make certain you copy all labels correctly.

B. List the major differences between the diagram for the U. S. and the diagram for the Soviet economy.

C. Are these important differences? Answer this by answering the following questions:

1. In what sense are they important differences?

2. What are the important similarities between the U. S. and Soviet economies?

FRAME 4

COMPARISON OF EXCHANGE DIAGRAMS: THE U.S., SOVIET, AND TSIMSHIAN ECONOMIES

This frame tests your understanding of the similarities and differences between the U.S., Soviet, and Tsimshian economies that are revealed by studying the exchange diagrams for these three economies. After each of the following statements, write the name(s) of the economy(ies) for which this is a true statement. Some statements are true for more than one of the three economies.

1. Many exchanges are money exchanges. ____________________
2. Families receive profit as income. ____________________
3. Families receive labor income. ____________________
4. Most market exchanges are by barter. ____________________
5. Families own the factors of production. ____________________
6. Families are the major producers. ____________________
7. Families are the major consumers. ____________________
8. A family's income _is_ its output. ____________________
9. A family's income is worth the same amount of money as its output. ____________________
10. A family can rent land it owns for money income. ____________________
11. The families own the factories. ____________________
12. The people in the economy do not make a distinction between land, labor, and capital as three separate factors of production.

    ____
13. Families buy most of the things which satisfy their wants.

    ____

FRAME 5 MACRO AND MICRO SYSTEMS

A system is a set of interrelated components which are organized into a whole so that they perform specific functions. For example, the automobile is a system of mechanical locomotion designed primarily to transport human beings from one geographical spot to another. Most complex systems are made up of many sub-systems which are necessary to the performance of the general functions of the system. For example, the automobile has as its syb-systems the carboration system, the cooling system, and the electrical system. Each of these sub-systems is composed of sub-systems; for example, the car's electrical system has a system of distributing spark to the spark plugs, a system for generating electricity, and a system for storing electricity. On the other hand, the automobile is a sub-system of the transportation system which in turn is a sub-system of the economic system.

Whether or not we call something a system or a sub-system depends upon our point of view. And in order to avoid confusion in terminology, we will refer to a system as a macro - system (a large system), and a sub-system as a micro - system (a small system). For example, if we are interested in how the automobile functions in the total transportation system, then we would refer to the automobile as a micro-system. On the other hand, if we are interested in how the automobile performs the functions of transporting human beings between geographical points, the automobile as a macro-system is the subject of our investigations.

For each of the following examples of a macro-system, list: (1) its function or functions, (2) the micro-systems of which it is composed, (3) the function or functions of the micro-system.

MACRO SYSTEM	FUNCTION OF MACRO-SYSTEM	MICRO SYSTEM	FUNCTION OF MICRO-SYSTEM
A House			

FRAME 5 - CONTD.

MACRO SYSTEM	FUNCTION OF MACRO-SYSTEM	MICRO SYSTEM	FUNCTION OF MICRO-SYSTEM
This Course			
The Federal Government			
Bell Telephone Co.			
The U.S. Economy			

FRAME 6 - DESCRIPTION OF THE CIRCULAR FLOW MODEL OF AN INDUSTRIALIZED MONEY EXCHANGE ECONOMIC SYSTEM

A. Studying the U.S. Economy as a Complete Economic System

The class has just discussed aspects of the U.S. economy which must be studied in order to explain the operation of the total economic system. In the space provided below, state the questions about the economic system which were raised in class.

Things to study about the U.S. Economic System:

B. List and give a brief description of all the parts of the circular flow model presented in the movie in class.

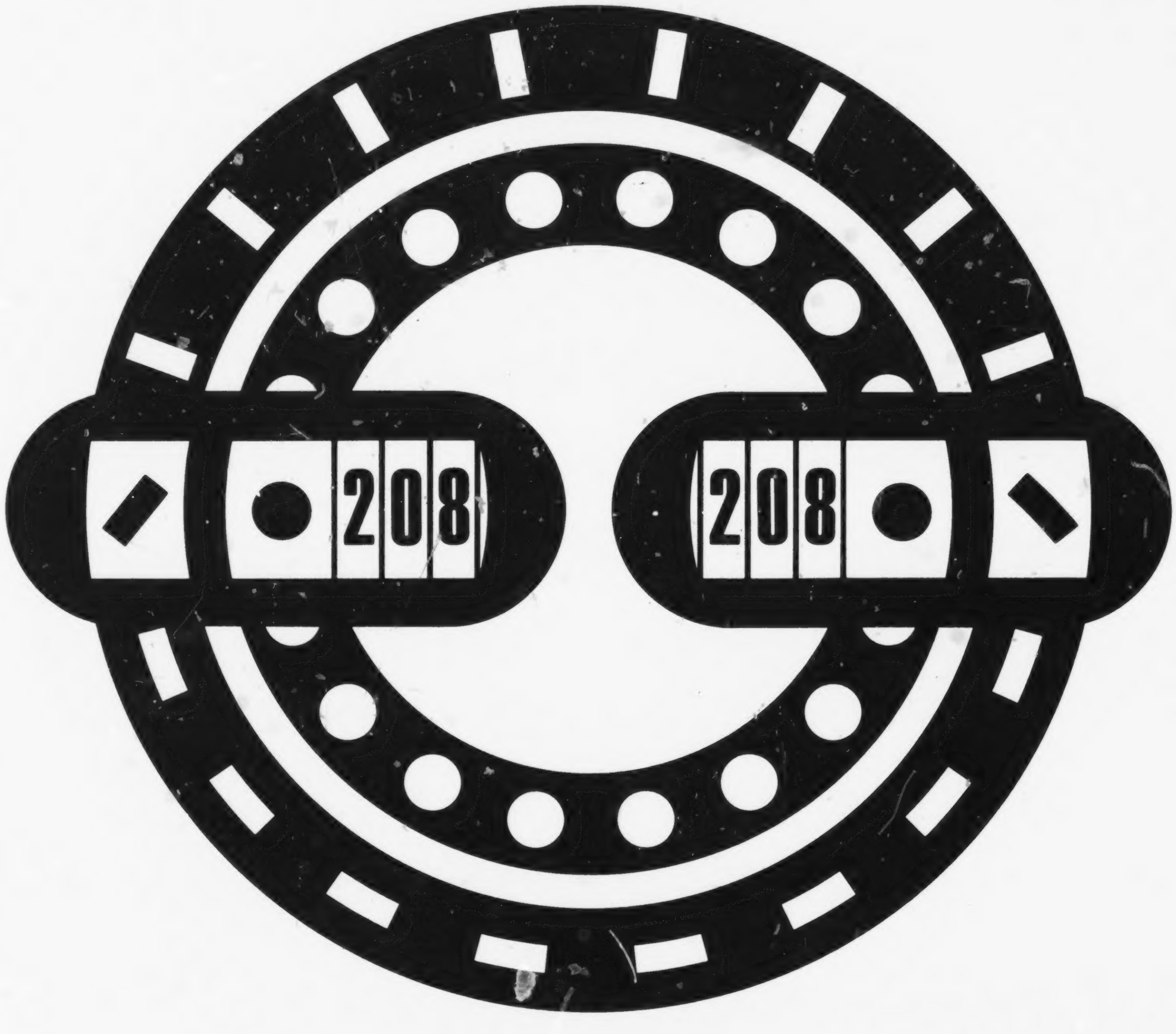
C. List and give a brief description of all the movements you see in the circular flow model.

3

FRAME 5 - CONTD.

MACRO SYSTEM	FUNCTION OF MACRO-SYSTEM	MICRO SYSTEM	FUNCTION OF MICRO-SYSTEM
This Course			
The Federal Government			
Bell Telephone Co.			
The U.S. Economy			

MON **JAN**



JAN	280
FEB	560
MAR	280

FRAME 7 - MACRO-ECONOMIC QUESTIONS AND AN ANALYSIS OF THE ANIMATED CIRCULAR FLOW MODEL

1. After the class discussion is completed, summarize the discussion of each of the following questions in the space provided below.

   A. What is the level of national output? (How do you measure GNP?)

   B. What determines the level of GNP?

   C. What is the relationship between national output (GNP) and national income?

   D. What determines the rate of growth or decline in GNP?

   E. What is the relationship between national output and total investment; total consumption spending?

   F. What is the level of national wealth?

   G. What determines the rate of growth in total wealth?

FRAME 8 SUMMARY QUESTIONS ON THE CIRCULAR FLOW MODEL

A. The total of all income received by families in a given period of time is the N________________ I _______________ of the U.S. for that time period.

B. N_______________ I _________________ is the sum of wages and salaries + I___________________ R ________________ + P_______ ____________________.

C. The total of all receipts of business firms from the sale of output produced in a given period is G_______________N_________________ P___________________.

D. Why is it always necessary to state the amount of GNP as the amount produced for a certain period of time?

E. In the table below, list the value of GNP and National Income for the three months shown in the movie.

Month	GNP	National Income
Jan.		
Feb.		
Mar.		

F. In this circular flow model, why is National Income always equal to GNP?

G. In this circular flow model, what is the relationship between GNP, total consumption spending, and total saving?

FRAME 8 (Continued)

H. Economists distinguish between two types of quantities: stocks and flows. Define and give an example of each from the circular flow model.

A stock is

A flow is

I. Flows are always measured as rates (or ratios), and the rate is a time rate.

In the following examples, choose those items which are flows and restate them as rates.

a. A business produced 5000 pairs of shoes in 1965. ____________________

b. A business owed $50,000 to a bank at the end of 1965. ____________________

c. On June 30, 1964 the XYZ Corporation sold $1,000,000 new stock certificates. ____________________

d. John Doe earned $500 in November, and $500 in December, 1965. ____________________

J. In this circular flow model, what is the relation between the speed of the inner circle and the number in the counters? And what does this relationship have to do with measuring rates?

K. In 1965 GNP for the year was something like $680 billion. Does this mean that at the end of the year there existed, somewhere in the U.S. $680 billion of income? Explain.

FRAME 8 (Continued)

L. Explain why economists usually measure total income and total output of an economy in money units rather than in the real quantities of goods and services used or produced?

What is the disadvantage of measuring GNP and National Income in dollar values?

FRAME 9

LIMITATIONS OF THE CIRCULAR FLOW MODEL

A. This circular flow model explains the generation of: (check the correct items)

___a. GNP

___b. total investment of the economy

___c. national wealth

___d. the total amount of capital equipment in the economy

___e. total saving in the economy

___f. total consumption spending

___g. national income

B. Which of the following kinds of general economic questions does this circular flow model answer best? (Choose one alternative)

___a. what goods and services are produced

___b. how scarce resources are allocated between businesses

___c. what determines the rate of generation of GNP

___d. how fast the economy grows

___e. the relation between GNP and National Income

C. Summarize the usefulness and limitations of this circular flow model.

LESSON NO. 6

PURPOSE OF THE LESSON

For students and instructors

The purpose of this lesson is to introduce the student to some of the important ways in which economists study the relationships between social values, economic goals and economic policies by (1) how economic values and economic goals shape economic institutions and determine economic activity, (2) how values and goals are translated into economic policies, (3) how we, as individuals, differ on the importance of economic goals, (4) how scarcity leads to conflict in the pursuit of these economic goals, (5) that the conflicts arising from the different economic interests of individuals are inevitable, (6) how conflicts over economic goals are resolved, (7) how rational economic thinking can aid us in choosing sound policies for our own lives and for the society in which we live, and (8) that economic policies are ultimately neither right nor wrong, rather they should be judged on whether or not they are logically consistent with the values and goals of the policy-maker.

All of these ideas will be developed more fully in subsequent lessons.

LESSON NO. 6

CONTENT OUTLINE

Economic Values: Goals and Conflict Resolution

For students and instructors

I. ECONOMIC VALUES AND GOALS

A. Social Goals and Value Systems

1. Individuals usually express their wants in terms of specific goods and services or jobs.

2. In order to talk of the wants of all of the people in a society it is necessary to use some abstract concept such as "social goals."

3. In simple societies the social goals are not articulated, but literate, highly developed societies are conscious of these goals and this enables the society to debate the value of its goals and to establish priorities among the various goals.

4. Taken together, the social goals express the values of the society.

B. Economic goals are one category of social goals. In most advanced economies, and especially in the U.S., economic goals can be subsumed under the following major goals. These also express our economic values:

1. Freedom
2. Justice
3. Progress
4. Stability

II. ECONOMIC VALUES AND MAJOR GOALS IN THE UNITED STATES

A. Freedom - economic freedom is created by tradition and by law. It usually refers to the freedom of an individual or a firm to own property, to buy and sell in the market and to enter into any economic activity. The exercise of these freedoms is absolutely dependent on the legal system and the power of governments to interpret and enforce the law.

1. Historically, two forces have restricted these freedoms:
   a. concentrated private economic power which achieves a monopoly control over some part of the economy and prevents other firms or individuals from engaging in

that economic activity and/or buying and selling that good or service. There are always monopolies in our economy, e.g., public utilities. More common today are concentrations of power where a few large firms control the industry, e.g., autos, steel, aluminum.

b. federal and state governments continuously create and restrict freedoms. Those they restrict are either traditional or have been created by government action. These restrictions arise from real or asserted social needs concerning:

    (1) national defense
    (2) health and welfare
    (3) freedom of commerce
    (4) economic stability

2. Governments usually restrict freedom by

    a. taking property through taxation.
    b. restricting the right to use property or by exercising the right of eminent domain and buying the property for public use at a price set by government.
    c. preventing certain economic activity by law or court action.
    d. placing restrictions on the free operation of markets.
    e. creating monopolies

B. Justice - has two aspects, objective and subjective.

1. Objectively, economic justice prevails when the laws governing economic activity are properly enforced and indivduals have an equal opportunity to engage in economic activity.

2. Subjectively, economic justice prevails when the great majority of people believe that individuals share the output of the economy according to what they think is just. T here are four basic ideas on how output should be distributed. None is completely satisfactory, but most societies use a combination of the first two. The four ways are according to:

    a. one's contribution to production
    b. need
    c. merit
    d. the principle of equal distribution to everyone

3. Generally, a person thinks an economic system is just if it operates in close conformity with his concept of an ideal system.

C. Progress

1. Quantitatively, it means a rising standard of living from increased national income per capita.

2. Qualitatively, it means improving the environment, e.g., clean air and water, uncongested streets and well planned cities and suburbs.

D. Stability

1. **Avoidance of depressions and inflations.**
2. **Maintenance of full employment**
3. **Administration of social security programs, e.g., unemployment, health, old age and survivors' insurance.**

III. ECONOMIC VALUES AND CONFLICT: Origins and Control of Conflict.

A. Scarcity and Wants

1. **If there were no scarcity there would be no economic conflict because everyone could have everything he wanted.**

2. **Even with scarcity, there would be no conflict if everyone**
    - **a. wished to use the scarce resources for the same things, and**
    - **b. was satisfied with the way output was divided.**

3. **The psychological nature of man allows us to assert the following as true for most people:**
    - **a. wants > resources**
    - **b. people differ in their ideas about what should be produced with the scarce resources,**
    - **c. people differ in their ideas about what constitutes a just distribution of output.**
    - **d. therefore, economic conflict is inevitable and must be accepted as a natural part of our society.**

B. Control of conflict

1. **Conflict, if uncontrolled would soon destroy society.**

2. **Conflicts can either be repressed by the imposition of power or can be resolved by economic and political methods which are acceptable to a majority of the people.**

3. **A conflict is said to be resolved whenever**
    - **a. the parties to the conflict accept the decision which ends the conflict, and**
    - **b. continue to support the social institution which has rendered the decision.**

4. **Societies vary in manner in which conflicts are resolved. These include decisions made by:**
    - **a. tradition**
    - **b. command**
        - **(1) executive action, public and private**
        - **(2) legal decision**
        - **(3) the democratic political process**
        - **(4) public opinion expressed through the mediums of communication**

c. market mechanism

C. Conflict Resolution - in the United States, the two most important ways of resolving conflicts over the economic goals of individuals and of the society are by means of the market system and the democratic political process. The political process operates through legislative, executive and legal action as influenced by public opinion.

1. The market system - conflicts over the economic goals of individuals are resolved when individuals or firms compete to buy or sell assets or services, and the exchanges which result represent an agreement between buyers and sellers. The conflict of interest is resolved, temporarily, at least. In the market, it is assumed that the participants are all acting in their own interest, to satisfy their own wants.

    a. families bargain and sell factor services to the highest bidder. They buy want satisfying goods and services at the lowest price, and pick those things which are most satisfying.

    b. firms produce services which people will buy. They produce something which will be as profitable as possible. This means that firms always try to produce efficiently--at a low cost--to sell as profitably as possible. They alter the product to conform to consumer demand and they try to sell at a price which will maximize total profits.

2. The democratic political process - Government resolution of conflict over public goals is, in our society, based on maximizing public welfare. The political process defines what the public welfare is and develops public policy to promote public welfare. There are a host of government activities and services which resolve conflict of interest between private parties.

    a. the courts settle disputes
    b. police and national defense
    c. the government provides public services and collects taxes.
    d. the government regulates business, families and other economic institutions and thereby limits what it considers legal economic activity.

V. ECONOMIC POLICY DECISIONS

A. POLICY

1. A plan of action designed to achieve a particular goal

2. A rule for determining whether or not the actions taken are correct.

B. Policy decisions require the practical application of economic science. This is called applied economics but it uses the theory and data from pure economics.

1. Pure economic theory and research
   a. describes existing institutions
   b. analyzes structure of institutions, the relationships between institutions and predicts future behavior of institutions
   c. analyzes the relations between institutions and individuals
   d. explains operation of total economy and predicts future level of economic activity.

2. Applied economics; economist aids policy-maker:
   a. states practical problem in a form amenable to economic analysis, e.g., "what will be the cost of a freeway in terms of construction costs, effect on businesses, on the residential community and on the national environment? " not "How much will it cost to build a freeway?"
   b. gathers data pertaining to the problem
      (1)currently available
      (2)new data (pure economic research)
   c. states constraints limiting policy choices
   d. calculates the cost of alternative policies and predicts probably effects.

LESSON NO. 6

STUDENT ESSAY

ECONOMIC VALUES, GOALS AND POLICIES

For students and instructor

I. Definitions

In order for any society to achieve the economic goals is desires, it must adopt specific economic policies which are within the realm of the possible and have a high probability of success. The choice of successful economic policies depends upon the wisdom of the policy-makers and the skill of the economists who advise them. Because this is an Economics course we are primarily concerned with the uses of economic reasoning in policy-making and to understand the procedure used in making policy decisions.

A policy, of any kind, is a plan of action designed to influence future activities in order to bring about certain results. Policies are found in all parts of organized society. Each of us makes and carries out certain economic policies for our own lives. For example, we decide upon policies with regard to the sort of work we will consider, the circumstances under which we will loan or borrow money, or whether we will buy a new car every year, every five years, or never, and whether we will pay cash or finance it. Families also have policies as do firms, government agencies and governments' agencies and governments themselves (local, state and federal) as expressed by the legislative and executive powers. The most commonly discussed economic policies are those of the federal government because they are the ones which most profoundly influence all of us. It is in this area of policy-making that economics is of direct and practical importance to us, and anyone interested in his own survival or even his own ease and pleasure ought to know something about the subject.

We cannot discuss policies apart from goals simply because policies are plans to achieve certain goals. An economic goal is simply a state of affairs which we hope to bring into existence. The policy-maker has first to decide what he wants to happen and then decide upon his policy. If the policy is in the area of economics, the policy-maker might well call upon the services of an economist -- this is certainly common practice in labor unions, businesses and government. The most important economic policy-maker in the United States is the President, and he has a Council of Economic Advisors to aid him.

Units II and III of this course are concerned with the theory and impirical knowledge which is necessary for one to make rational policy-making decisions. Most of the actual policy problems you will discuss in these units are those which face the federal government. They are the most complex and important problems and the ones with which economics is most concerned. The economic policies of the federal government are the most important influence on how the market system operates, what our national income will be, how fast our economy will grow and how our economy will operate within the world economy.

Federal economic policy has to be directed toward certain goals, so we should know something about these goals. There are, of course, thousands of goals pursued by the federal government. Policies designed to help achieve these goals include Medicare, unemployment payments for the unemployed, price stability, job training for youth, protection of natural resources, restriction of trade with Communist countries, crop controls, etc., etc., etc.

II. ECONOMIC VALUES: OUR MAJOR GOALS

There are four major categories in which all of these goals can be placed (some in more than one category). These categories themselves are goals, but they are so general that they also express what might be called the economic values of our society. These categories of major economic goals, or economic values are:

freedom
justice
progress
stability

These goals are closely related, and policies designed to achieve one usually aids or hinders our efforts to achieve one of the others.

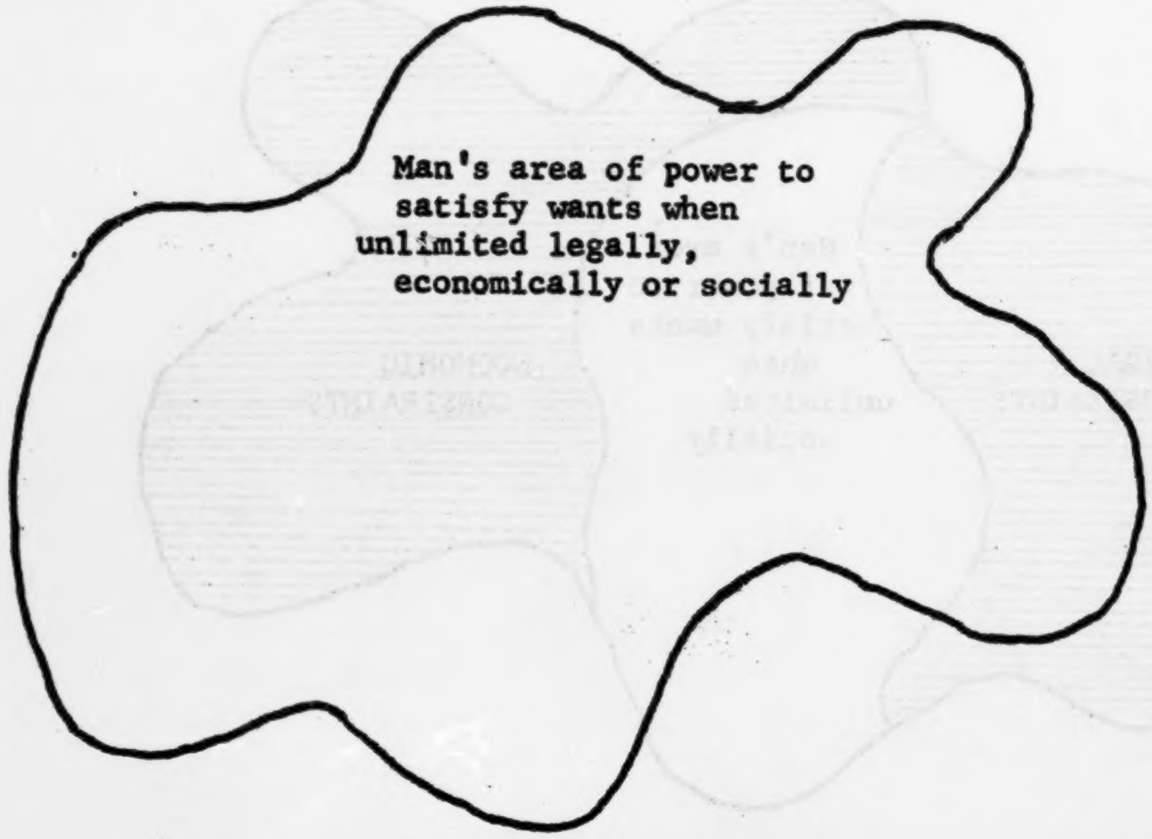
Freedom and justice are qualitative not quantitative, so we can measure them only by comparing them to some ideal. We can, in a rough way, rank societies as to how closely they conform to an ideal.

Progress and stability can, in many respects, be measured with comparative statistics, but each also has important qualitative aspects.

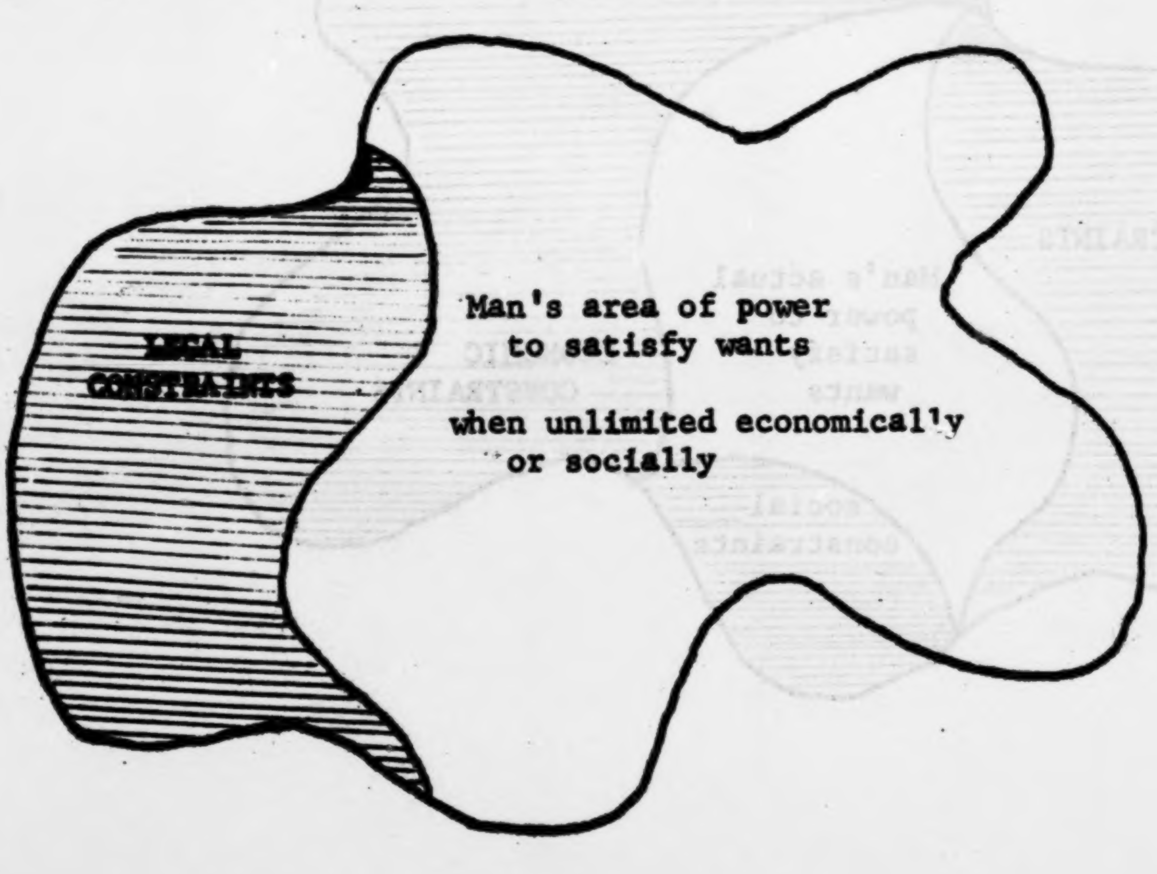
Freedom

Freedom is a complex word which is dear to the hearts of Americans; but we should remember that we don't have a monopoly on it. Hitler used it; the Communists use it, and the Catholic church holds that real freedom lies only in humility and obedience to authority. Probably the word means something different to each of us, but all of us share some of its meaning and, hopefully, this discussion is based on the shared part of the meaning.

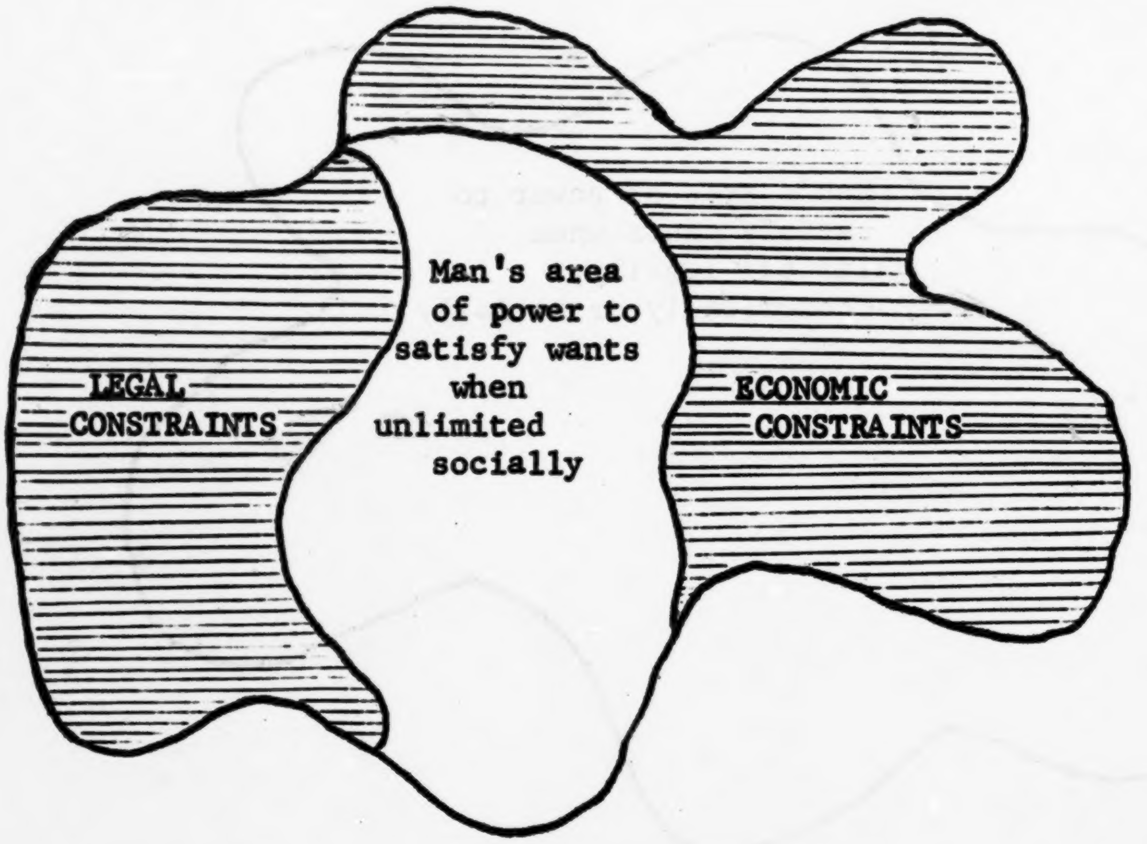
For the individual, or any social group, freedom is an aspect of power -- the power to choose and act. "The universe is infinite and man is finite," so man is a limited being. He is limited by time, by the degree of control over nature, and by the psychological constraints he places upon himself. All men share these limitations; so to be a man is to be a creature with limited control and freedom. Any particular man is, of course, limited far more than man in general. We can symbolize this idea of limitation by drawing a closed figure representing the area of a man's power if he were not limited socially, economically, and legally. This figure would not be quantitative in any sense, but it represents an abstract boundary which indicates the limits of a man's power to satisfy his psychological and physical wants and we can then put in the constraints which face all of us:


Man's area of power to
satisfy wants when
unlimited legally,
economically or socially

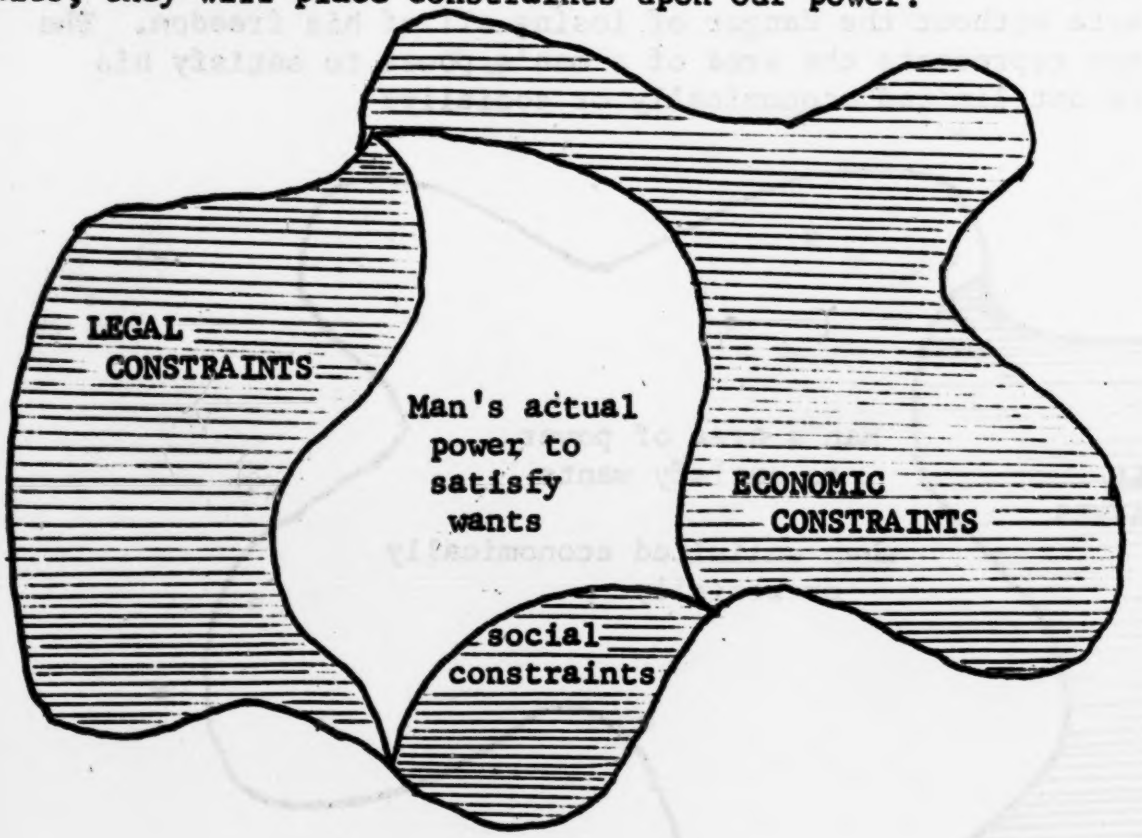
We can then symbolize the way in which the law limits freedom of action by shading out a portion of the figure. For example, if a man had previously experienced a thrill from stealing, he could no longer indulge this taste without the danger of losing all of his freedom. The unshaded area now represents the area of a man's power to satisfy his wants when he is not limited economically or socially:


LEGAL
CONSTRAINTS
Man's area of power
to satisfy wants
when unlimited economically
or socially

Next, we will shade out the area of economic constraint, e.g., no single individual has the economic power to launch an expedition to the moon:


Man's area of power to satisfy wants when unlimited socially
LEGAL CONSTRAINTS
ECONOMIC CONSTRAINTS

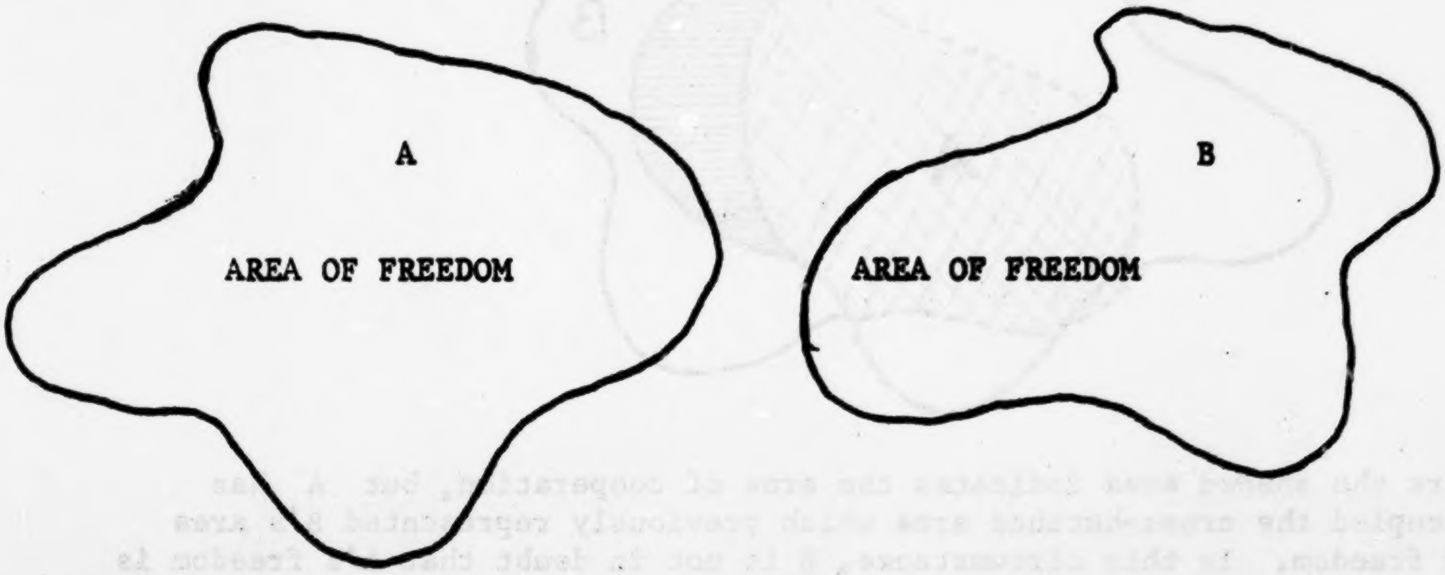
Next, we will shade out the socially impossible. All of us have social weaknesses. Some of us are shy, others aggressive and talkative; some charming, others boring; and some just nice but dull. Whatever our traits, they will place constraints upon our power:


LEGAL CONSTRAINTS
Man's actual power to satisfy wants
ECONOMIC CONSTRAINTS
social constraints

When we have shaded in all the areas representing the constraints placed upon our power, we have the above figure which symbolizes the world of reality in which we live.

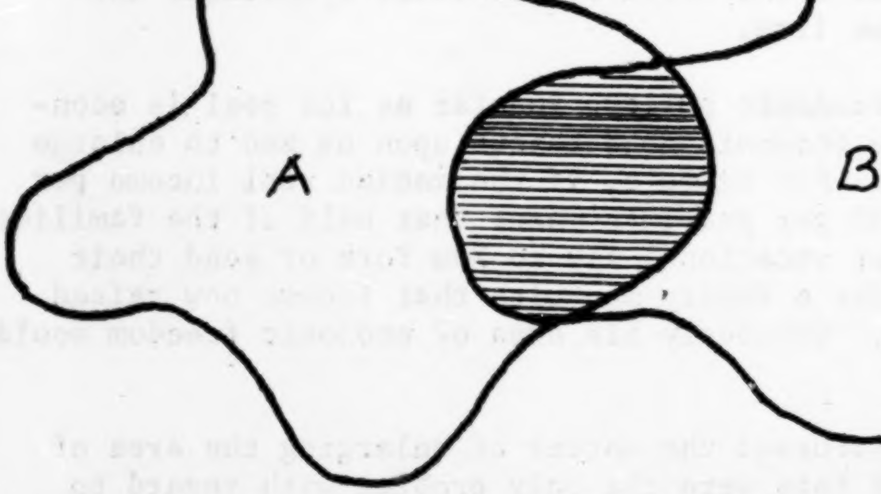
It is the purpose of economic policy, insofar as its goal is economic freedom, to reduce the economic constraints upon us and to enlarge the power to satisfy wants. For example, if the median real income per family in the U.S. is $5,000 per year, it means that half of the families can't take month-long summer vacations, fly to New York or send their children to college. Suppose a family man with that income now raised his real income to $10,000. Obviously his area of economic freedom would be greatly enlarged.

So far we have only discussed the matter of enlarging the area of freedom for one person. If this were the only problem with regard to freedom we would have only to increase incomes and liberalize social and legal restrictions, and soon we would truly be a nation of free men. Unfortunately, there is a bar to such an easy solution, and this bar is the desire of most people to enlarge their freedom at the same time and in the same way as most other people. The result is conflict-- one's man freedom can quickly become another's prison. We can illustrate this with diagrams again. Let us assume that the two diagrams below represent the possible areas of freedom for individuals A and B.

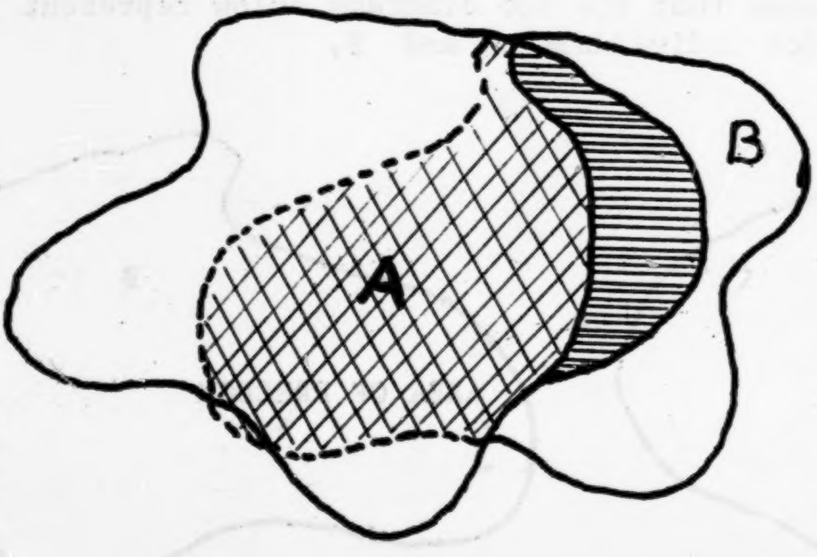


Now, all social existence involve cooperation, for example, in friendship, marriage, the family, an industry, or the nation. Each of us cooperates in order to exist. This area of cooperation between A and B is indicated by shading

(see next page)



If, however, A is stronger than B, it might be possible to diminish B's freedom. Imagine what such a diagram would look like if the relationship were between a master and a slave. In this case the two diagrams would show a great overlap, but the overlapped area would not represent an area of cooperation.



Here the shaded area indicates the area of cooperation, but A has occupied the cross-hatched area which previously represented B's area of freedom. In this circumstance, B is not in doubt that A's freedom is his prison.

Most of the problems of freedom are variations on the one immediately above. That is why the policy-maker whose goal is freedom tries always to enlarge the area of everyone's freedom -- this allows him to avoid conflict. However, most of his decisions do involve both enlargements and diminutions of the freedom of indviduals, groups and institutions. These alterations lead inevitably to conflict and one of the major functions of our socio-economic system is to resolve conflicts which grow out of our struggles for ever more freedom.

Justice

The problem of economic justice is primarily concerned with two things: (1) that the law coerce all and protect all in an equal manner, and (2) that the output of an economy be divided justly among the members of the society. Most people have a pretty good idea of what constitutes an ideal administration of the law and an ideal distribution of the output, so long as a socio-economic system operates somewhere close to the ideals held by the majority of the people, then it can be said that economic justice prevails in the society.

The matter of the equal protection of the law is fairly simple. Legal equality means that a person is protected in his right to engage in any legal economic activity for which his talents qualify him. Obviously, racial discrimination is an economic inequality. By extension, the freedom to obtain the training which gives talent is also a matter of economic justice and this is why our supreme court ordered the end of segregated schools in 1954. U.S. history gives constant instances of the efforts of groups of people to obtain economic justice, and you should have no difficulty in calling them to mind.

The question of what constitutes a just distribution of output is a much more difficult task. Only one solution seems likely to gain universal assent and we have already studied the difficulties that solution faces. It is to produce so much that everyone will have all he wants, that is, solve the scarcity problem. Although we are not likely to solve the scarcity problem, it is still true that very rich societies like our own usually have less conflict over distribution problems simply because people are less threatened when they are asked to share a large output than they are when asked to share a small one.

There are four principal standards for distributing output. They are (1) by merit, (2) by need, (3) by giving each one an equal amount and (4) according to one's contribution to production. There are difficulties with all of them.

The merit system is only chosen when society is ruled by an aristocracy or priesthood which has the power to distribute large quantities to the meritorious few and small quantities to the undeserving many. Obviously, such concentrations of power don't last forever in a democracy but America has had such experiences, and to some they seemed to last forever.

Distribution by need seems fine at first until one tries to figure out how need is determined and how you would match need to output. There are approximately 200 million people in the U.S. How could the need of each be determined? How would each person be given the command over output which just matched his need? What would happen if needs were larger than output? If they were less than output?

If we divided all the purchasing power equally every month we would satisfy the equality standard, but would we increase economic justice?

For example, does the child or the old person need as much income as a young man or woman getting an education? Does the person who, because of physical, mental or psychological deficiencies deserve as much as a vigorous producer? What would happen to incentives under such a system?

Most societies have settled on a system of distributing output according to the contribution to production, tempered by distribution according to need.. This maintains incentives and induces the person with a high level of need to make a large contribution to production. In those cases where need is greater than the capacity to provide productive services, private charity or government welfare makes up the difference.

In our own society, the richer we grow the more generous we become in recognizing needs beyond contributions. In fact, a Presidential Commission has recommended that each family in America receive a minimum of $3,000 per year.

Progress

Economic progress is generally referred to as a rising standard of living and this is most often obtained by increasing the national income per capita. This increasing output per capita represents an increase in productive capacity relative to the total population.

Progress also has a qualitative meaning, i.e., that the quality of American life improves along with the increase in per capita goods and services. Some of the adverse things affecting our lives are polluted air and water, deteriorated cities, sprawling suburbs and congested traffic. We can hardly be secure in our belief that we are actually progressing unless we improve or maintain quality while we are increasing quantity.

Stability

Stability is generally associated with (1) avoiding depression and severe inflations, (2) continuous full employment, and (3) social security, i.e., unemployment, health and old-age insurance

In a modern economy, stability can only be maintained by influencing the level of operation of the whole economy. Consequently, maintaining stability is primarily the responsibility of the federal government. Until the 1930's the federal government was not concerned with stability, but at the depth of the Great Depression unemployment was so high (30 per cent) that the government faced a clear choice, either solve the problem or watch society disintegrate. Economic science did manage to provide the government with tools needed to deal with the problem, and we have not had a serious depression since World War II. In 1946, Congress passed the Full Employment Act which established full employment and the maintenance of price stability as Congressional responsibilities. Since its original enactment in 1936, the social security laws have been steadily expanded.

Minimum wages have been raised, unemployment insurance coverage broadened and, most recently, medical care for the aged has been instituted.

III. ECONOMIC CONFLICT RESOLUTION

The intensity with which Americans pursue happiness (much of happiness lies in achieving economic goals) means that both private and public economic conflict is going to be part of the American way of life. In short:

We have four goals as you see
We also face grim scarcity.
What gives me justice, law and right
Your freedom robs; what then, fight?
The conflict, clear, we must resolve
Else society we'll soon dissolve.

Most stable societies are marked by a general agreement on economic values and major goals. The simpler an economy, the fewer the goals it can satisfy, but, fortunately for people in simple economies, they have less variety in their ideas, attitudes and tastes. Whether the number of goals is large or small there is still the problem of scarcity to face. If there were no scarcity, society would have no goals because everyone would have everything he wanted and the problem of choosing one set of goals from among a wide range of possibilities would not exist.

There is also another fact which intensifies the problems arising out of multiple economic goals and limited economic resources. This is the fact that although people can agree on a set of goals, there are wide individual differences on the relative importance of the particular goals. For example, I might desire freedom with passion, be enamoured of progress, consider that a little justice goes a long way, and regard stability with indifference. You, on the other hand, might love stability and consider too much progress and freedom as positive dangers. Obviously, the probability of conflict between us is very great, and when one considers all the possible conflicts in a society, it is clear that in order for a society to exist it must have good techniques of resolving conflicts.

To be successful in achieving its goals, the way a society resolves its conflicts must help to achieve those goals. For example, we have recently sought justice for the American Negro through direct peaceful action and legal action. The first way was an exercise of individual freedom, and the second way was for Congress to pass the Civil Rights and the Voting Rights Bills, both of which enlarged the area of freedom which had been defined by direct action. Thus, in a conflict over the quality of justice in our society, the conflict was resolved in such a way that not only was justice increased but freedom as well.

The choice of policies which will preserve our values, achieve our goals, and resolve our conflicts is not an easy task. The method of making such choices is too difficult to learn by reading about it; it requires doing. Therefore, this lesson will conclude with an exercise on decision-making.

ECON 12

WORKSHEET NO. 6

Frame 1

Every society has social values which find expression in its economic goals and in the economic institutions which help to achieve these goals. Values create goals and goals create institutions but institutions also create goals and goals shape values. For example, America values economic progress and sets as one of its goals the improvement of transportation. The auto industry was an institution that was created by pursuing that goal. However, once the industry was in being, people fell in love with the automobile and the goals of improving transportation was complicated by the additional goal of owning a car. As a consequence, a transportation system was built which was not designed for maximum efficiency in transportation of human beings but for maximum efficiency in transporting human beings in automobiles.

It is not always possible to say whether values create goals which then create institutions but we can say that societies which have certain values usually have a set of goals and institutions which are interrelated.

In order to see if you agree, let us take a brief look at Tsimshian and U.S. societies.

In Lesson No. 4 you learned that the Tsimshian and U.S. economies had basic differences in economic institutions and in ways of making economic decisions. These differences were summarized in the following list of characteristics of the Tsimshian economy:

1. Limited variety of outputs and per capita income
2. Limited specialization
3. Limited exchange between economic instituions; no real money
4. Only one major type of economic institution
5. Allocation decisions strongly affected by tradition
6. Communal rather than private property, almost all property obtained through heredity.

Using this list, write two short paragraphs, one on the social values of the U.S. society, the other on the social values of the Tsimshian society. You should mention those Tsimshian and U.S. economic institutions which best express that society's social values. The purpose of the two short paragraphs is to enable you to compare the two societies in this regard.

TSIMSHIAN VALUES:

TSIMSHIAN VALUES, cont'd:

U.S. VALUES:

Frame 2

The economic goals of the U.S. society are mostly achieved through the activities of these private and public economic institutions. It follows logically that most of the activities of these institutions are based upon policies designed to achieve our economic goals. Below is a list of public and private economic activities, and below this list is a table headed by the four basic economic goals of our society. Place the items in the list under the proper economic goal. An item may fit into more than one category.

GOVERNMENT ADMINISTRATION OF:

1. **medicare**
2. **youth, job training**
3. **industrial smog control**
4. **auto smog control**
5. **anti=trust laws**
6. **airline subsidies**
7. **the war in Vietnam**
8. **Civil Rights Bill to end job discrimination**
9. **full employment law**
10. **federal taxing and spending activites**

PRIVATE POLICIES AND ACTIVITIES

1. **automation in industry**
2. **pension plans of unions**
3. **savings by households**
4. **working one's way through college**
5. **being drafted into the army**
6. **buying a car**
7. **buying & selling of a firm**
8. **laying off workers by a firm**
9. **changing one's job**
10. **changing the brand of one's lipstick**

JUSTICE	**FREEDOM**	**PROGRESS**	**STABILITY**

Choose six of the above actions or policies designed to achieve one of the four goals which also conflicts with the achievement of one of the other goals. Write a one-sentence explanation of why each of the six choices has this effect.

SIX CHOICES:

1.

2.

3.

4.

5.

6.

Frame 3

There are two ways of studying the values of a society. One is to examine the institutions which shape the activities of the society and then deducing what the values of a society must be if its members puruse those activites. The other way is to read what the leaders of the society (politicians, educators, clergymen, business leaders) have to say about the goals and values of the society. The leaders express the aspirations of the society -- the longings for the past and hopes for the future. The words are important for they help to bridge the gap between what we were and what we hope to be. By so doing, they make the present bearable and meaningful.

Values expressed through actions and values expressed through words (rhetoric) are particularly important in understanding the values of American society. Throughout our history, American leaders have stated the values of our society in the most general philosophical terms. The great documents and speeches which we study are sound evidence for this.

> "Four score and seven years ago our fathers brought forth upon this continent a new nation, conceived in liberty and dedicated to the proposition that all men are created equal."

Eighty-seven years before these words were spoken Thomas Jefferson had written that

> "We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain inalienable Rights, that among these are life, Liberty and the pursuit of happiness."

At Gettysburg, Lincoln justified a bloody war by citing the aspirations expressed by Jefferson in 1776.

In 1776, had someone placed the Declaration of Independence next to the laws stating the conditions of Negro slavery (slave code) there would have been an obvious contradiction between the two documents. What then would have been the answer to the question "Do Americans value liberty and equality or slavery?" Obviously, the answer is "both." In the Declaration, Jefferson expressed his own aspirations and those of the society; the slave codes described his own actions and those of the other slave-holding patriots of the south. Which of the two documents gives the best evidence for what American values were in 1776? The answer is "neither." Each document expresses the value which was important to the people of that time.

Because the values of liberty for all and slavery for some are contradictory, it does not mean that Americans in 1776 were contemptible hypocrites. Then, as now, the people balanced hope for a better future against the often unattractive reality of the present. Clearly, a value expressed in terms of an aspiration is likely to have a greater influence on the future than is one expressed through unselfconscious activity. Certainly, the Declaration of Independence has more relevance and meaning for us than does a description of how a slave-holder of 1776 conducted his affairs.

The idea of economic freedom is one of the major values of American society and each generation of Americans has accepted it as a goal to be pursued. Different generations have thought that freedom required different things but, on the whole, our ideas have reamined consistent with the Declaration of Independence.

Below are two interpretations of economic freedom that are 125 years apart. As you read these documents try to think of

1. Whether anyone's interpretation of economic freedom is likely to benefit everyone
2. How the interpretations have changed
3. What caused the changes
4. Whether, in your opinion, the change has been for the better or for the worse.

T hese two documents are both concerned with the right of employees to organize into unions, bargain collectively, and to strike for higher wages. The first is a court decision handed down in Philadelphia in 1806; the second is a section of the National Labor Relation's Act of 1935.

THE CORDWAINER'S CASE, 1806

In 1806, the Philadelphia shoemaker's union (cordwainers) called a strike in order to raise wages. The union was charged with a criminal conspiracy in restraint of trade, and its members were tried and convicted. The State of Pennsylvania charged that the shoemakers were not content with the wages the shoe manufacturers customarily gave them and that they did "combine, conspire and confederate" to damage and injure their employers, and their fellow workers, and they set an "evil example for others" and struck at "the peace and dignity of the commonwealth of Pennsylvania."

In his instructions to the jury, the judge summed up the case for the prosecution and ordered the jurors to find the shoemakers guilty. In so doing, he gave an excellent statement of the concept of economic freedom that was then dominant.

The judge claimed that any attempt by employees to organize to raise wages was an arbitrary imposition of the will of a few and that it was "unnatural." Furthermore, if workers could bargain to raise their wages, no manufacturer could do business. "Is there any man who can calculate (if this is tolerated) at what price he may safely contract to deliver articles? ....If he makes a large contract for goods today, for delivery at three, six, or nine months hence, can he calculate what the prices will be then, if the journeymen in the intermediate time, are permitted to meet and raise their prices, according to their caprice or pleasure?....What then is the operation of this kind of conduct upon the commerce of the city? It exposes it to inconvenience, if not to ruin; therefore it is against the public welfare.

"How does it operate on the defendents? We see that those who are in indigent circumstances [without money], and who have families to maintain... have declared here upon oath, that it is impossible for them to hold out... can such a regulation be just and proper? Does it not tend to involve necessitous men in the commission of crimes? If they are prevented from working for six weeks, it might induce those who are thus idle...to take other courses for the support of their wives and children. It might lead them to procure it by crimes--by burglary, larceny, or highway robbery!

"In every point of view, this measure is pregnant with public mischief and private injury...it tends to demoralize the workmen,...to destroy the trade of the city, and leaves the pockets of the community to the discretion of the concerned. If these evils were unprovided for by the law now existing, it would be necessary that laws should be made to restrain them." 1

THE NATIONAL LABOR RELATIONS ACT, 1935

This legislation was a direct result of the Great Depression. Unemployment was the worst in our history (30% at its deepest point in the winter of 1932) and workingmen had suffered terribly. T here was much labor unrest and businessmen were not in a powerful position to offer political resistance to this bill.

"Section 1. The denial by employers of the right of employees to organize and the refusal by employers to accept the procedure of collective bargaining lead to strikes and other forms of industrial strife or unrest, which have the intent or the necessary effect of burdening or obstructing commerce by (a) impairing the efficiency, safety, or operation of the instrumentalists of commerce; (b) occurring in the current of commerce; (c) materially affecting, restraining, or controlling the flow of raw materials or manufactured or processed goods from or into the channels of commerce, or the prices of such materials or goods in commerce, or (d) causing diminution of

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1. Commons, John R., A Documentary History of American Industrial S ociety, [redacted] Arthur H. Clark, Cleveland, 1910, III, pp. 229-30.

employment and wages in such volume as substantially to impair or disrupt the market for goods flowing from or into the channels of commerce.

"The inequality of bargaining power between employees who do not possess full freedom of association or actual liberty of contract, and employers who are organized in the corporate or other forms of ownership association substantially burdens and affects the flow of commerce, and tends to aggravate recurrent business depressions, by depressing wage rates and the purchasing power of wage earners in industry and by preventing the stablization of competitive wage rates and working conditions within and between industries.

"Experience has proved that protection by law of the right of employees to organize and bargain collectively safeguards commerce from injury, impairment, or interruption, and promotes the flow of commerce by removing certain recognized sources of industrial strife and unrest, by encouraging practices fundamental to the friendly adjustment of industrial disputes arising out of differences as to wages, hours, or other working conditions, and by restoring bargaining power between employers and employees.

"It is hereby declared to be the policy of the United States to eliminate the causes of certain substantial obstructions to the free flow of commerce and to mitigate and eliminate these obstructions when they have occurred by encouraging the practice and procedure of collective bargaining, and by protecting the exercise by workers of full freedom of association, self- organization, and designation of representatives of their own choosing, for the purpose of negotiating the terms and conditions of their employment or other mutual aid or protection......" 1

QUESTIONS:

1. What changes occurred in the idea of what role unions were allowed to play in economic life between 1809 and 1935?

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1. United States Statutes At Large, XLIX, pp. 449-50

[redacted]

2. Whose freedom was increased? and whose freedom was decreased?

3. How do you account for the changes?

4. What were the major changes in American economic institutions between these two periods?

Frame 4

The policies set forth in the cordwainer's case and in the National Labor Relations Act were designed to resolve economic conflicts. You may not agree with the policies but the authors of the documents give arguments for their position. Every policy statement, to be effective, must be defended by (1) an argument that sets forth the goal the policy is designed to achieve and (2) how the policy is going to help achieve the goal. One of the best ways to learn how to defend a policy is to analyze an economic problem, decide on a policy you think will help to solve it, and then to defend your policy decision. This Frame will set forth the steps in making an economic decision. The instructor will then set an economic problem (s) for the members of the class to solve. You are to decide upon the best solutions and defend your decisions.

Steps in making a rational decision on economic policy:

1. State the goal you wish to achieve.
2. Determine that the goal is consistent with your other goals.
3. List the things which limit the policies you could choose.
4. List the alternative policies available to you.
5. Calculate the cost of each alternative.
6. Choose the most economical policy.

A Sample Problem: Trade with China

One of our national economic problems, and one which will affect most of us is whether or not our government should allow us to trade with China. In 1964, there was a great debate over whether or not to sell our surplus wheat to Russia. A list of main points made by both sides during that debate might be of aid in deciding whether or not to trade with China. (President Kennedy did finally decide to sell the wheat to Russia)

Arguments in favor of wheat sales to Russia:

1. Would bring $250 million into U.S. which would aid our balance of trade.
2. Save $200 million storage cost.
3. Higher wheat prices to farmer.
4. Would use 81,700 freight cars and 470 steamships.
5. Help solve the wheat surplus problem.
6. Increase employment and thus GNP.
7. Would make Russia more friendly.

Arguments against:

1. Russia gets wheat and is not hurt by any wheat crop failure.
2. Wheat could be transhipped to Cuba.
3. Free agricultural labor for war industries.
4. Would reduce our will to fight Communism.
5. Would encourage our allies to increase their already large trade with Russia.

A brief examination of the items above make it evident that political considerations weight heavily in making decisions about foreign trade with communist countries. In this area of policy it is necessary to establish the political constraints in which an economic decision must be made.

WORKSHEET NO. 5

NOTES ON POLICY DECISIONS

Notes on policy decisions, cont'd.

We are at a point where we can round up some of the ideas we have been discussing, refine them a little, and arrive at a more careful definition of what economics is.

We began with the thought that economics examines how we dispose of scarce resources in satisfying the wants of mankind.

Then we discussed some of the chief interests of the economist:

- The activities with which economics is concerned (production, consumption, exchange, savings, and investment);
- The decisions to be made about the use of scarce resources (what, how, for whom, and how much to produce);
- The organization and operation of economic systems and institutions as they evolve under the influence of the social forces (tradition, command, and market competition).

These economic activities and decisions, and the functioning of economic systems and institutions are all the outcome of human actions, or, to use the proper word, of human behavior.

Suppose we combine these statements in one sentence as a first step toward a definition. Is the following a good summary?

> Economics is the study of human behavior as it affects the disposal of scarce resources to satisfy wants.

Well, there's room for opinion here, of course, but we feel that the definition says it rather neatly, as far as present discussion has gone. Now take a look at this next definition and see what you think of it:

> Economics is the science which studies behavior as a relationship between ends and scarce means which have alternative uses.

What you feel about it is again your opinion.

However, this is the definition on which most economists agree. It comes from a British economist, Lionel Robbins, and has stood the test of 30 years of debate.

Since economists (an argumentative lot) are so widely agreed on this definition, let's look at it more closely.

First, Robbins' uses the words "ends" and "scarce means" where we have preferred to say . . . what? ______________________________

and _____________________.

We have said "wants" and "scarce resources" where Robbins says "ends" and "scarce means". But the meanings are the same.

Notice that Robbins says, "scarce means which have alternative uses." Why is he so particular about "alternative uses"?

Suppose we have a resource which is scarce (i.e., there is not enough to satisfy all the desires for it) but which has no alternative use. Do we have to make any economic decisions about this resource?

Yes, we would probably have to make some.

The economic decisions are:

(1) What to produce;

(2) How to produce;

(3) For whom to produce;

(4) How much to produce.

For the scarce resource with just a single use, it would not be necessary to decide on what to produce or how to produce the output. The other two decisions do raise questions, but these questions are simple as compared to those that must be answered when a scarce resource has alternative uses. When we must decide how to share a resource between a number of possible uses, the problems get much more involved, and these are the problems which are of primary interest in economics.

Take another look at Robbins' definition. It contains one word which we have not used or discussed up to this point. Can you see what it is?

Robbins rightly calls economics a science. And that has some implications. Let's see what they are.

The sciences are divided into two broad groups: (1) the natural or physical sciences, and (2) the social sciences. The former, as their name implies, study what happens in the natural and physical world and they include biology, chemistry, physics, geology, and astronomy. The latter study the social things of the world -- people, and, in particular, people in groups. In addition to economics, the social sciences include:

Anthropology: The study of the physical and cultural characteristics of man, particularly of primitive man.

Political Science: The study of government and political power.

Sociology: The study of society, the forms of groups within society and the interaction of these groups with one another.

If you have any acquaintance with the sciences, you may be accustomed to thinking of each science as a separate subject. But, of course, this is just a convenient way of looking at the sciences when first learning about them. As you learn more and more about the sciences, the dividing lines get blurred. This is particularly true of the social sciences.

For example, suppose we study a dispute over wages and working conditions between an industry and a labor union. Which of the social science disciplines is involved? Certainly, economics. And, since groups of people are involved -- families, the locals of the union, companies -- this could also be a topic for the sociologist.

Thus, a problem from real life can involve several of the social sciences. And, very important, each scientist will study the problem from the point of view of his particular science.

Suppose we plan to study how religious groups have affected a modern city's political power structure. This seems to be an area of study

which involves the social sciences. Which of the following disciplines are likely to be involved?

(a) sociology

(b) political science

(c) anthropology

(a) and (b). The sociologist is interested in the interaction of groups of people. The political scientist studies government and political power.

The anthropologist probably would not be involved since his interest tends to concentrate on primitive societies.

Are economic issues likely to be present in a study of this sort?

Yes. The problems of how to use scarce resources are everywhere in politics -- the reasons why the religious groups take part in politics may be partially economic.

Another important point: When we talk of something being a science, we mean that it uses the scientific method. This method helps the scientist to extend knowledge by explanations which concentrates on the analysis of facts. This is not to say that a scientist never guesses, or that he does not have theories and opinions like the rest of us. But it does say that conclusions and predictions made by scientists must be consistent with the facts. Thus, in using the scientific method:

(1) He assembles as many facts as possible about the thing to be studied;

(2) On the basis of the facts, he makes an informed guess about the nature or the operation of the thing to be studied (this is called "stating a hypothesis");

(3) He tests to see if his hypothesis is accurate. For a very simple example of the scientific method, we can turn to the natural sciences. Suppose a chemistry class has the problem of identifying a liquid. One of the facts it has on hand is that blue litmus paper will turn red if dipped in an acid solution.

Can you state a hypothesis for this situation?

The hypothesis might go like this: When the litmus paper is dipped in the solution it will turn red, indicating an acid.

The test is simply to dip the litmus paper in the solution. By doing that, the class can add another fact to its collection; if the paper changes color to red, the solution is acid and the hypothesis is accepted.

One of the basic concerns of science is to discover the laws by which various things operate. These laws, once discovered, can then be used to make accurate predictions about what will happen with similar things in similar situations.

For a number of reasons, there are many more such laws in the natural and physical sciences than there are in the social sciences. Thus, a physicist can predict with great accuracy the period of swing for a pendulum of a certain length, simply by using the law that governs it. But a social scientist finds it hard to predict how people will vote in an election, for example, or how they will spend their income.

Basic problems in explaining human actions are that it is hard to tell what a man thinks or how he arrives at a conclusion; we can, however, find out some things about his thinking by observing the things he does as a result of his thinking.

Can you supply the word the scientist uses for the phrase "the things he does as a result of his thinking"?

The scientist's word is "behavior."

We mentioned earlier that it is often hard to classify a real-life problem as belonging to just one of the social sciences. In many cases, the problem can be examined from the viewpoint of more than one social science.

But can we turn this idea over, as it were, and say that it is hard to find a real-life problem in the social sciences that is not in some way economic?

Take, for example, two young people in love. They decide to get married. Does this involve economic issues?

Darn right it does! The starry-eyed lovers may not be giving much attention to economics. But they are immersed in economic issues up to the ears.

Here are some of the issues involved in courtship and marriage. Which of them are economic?

(a) income earning capacity

(b) religion

(c) race

(d) personality

(e) physical characteristics

(f) level of wealth

(a) and (f) are quite definitely economic isses.

The others, as you may have noticed, are all social science issues and most have economic aspects.

The foregoing list of economic issues is far from complete. As newly-weds, the couple will become a new economic unit, a source of purchasing power (probably credit) for all sorts of things they never had before, a living proof that two cannot live as cheaply as one. By marrying, they will enter into a contract in which, in many states, property becomes jointly owned and in which a husband takes responsibility for his wife's debts.

Marriage involves a much more basic economic decision. Since a person can marry only one spouse at a time in this country, a choice of one marriage partner automatically excludes all other choices. There is a real scarcity problem. If you marry Suzy or John, you give up the fun of being married to Jill or Mark. The alternative cost of marrying Suzy is the pleasure you would have had being married to Jill.

Next question: How about working on a political campaign? Does this involve economic issues? And if it does, can you name any of them?

Yes, economic issues are involved.

If you are personally working in a political campaign, then you have, for a start, made a decision about the allocation of at least one of your scarce resources -- time.

And, of course, most political campaigns involve controversy over economic issues, elements of "haves" against "have-nots" which call for a redistribution of scarce resources. Presumably, if you join a campaign, you have made some economic decisions on these issues.

To come to the point: There are economic issues in almost all aspects of our lives. But are these details of an individual life really of interest to the economist?

Here's Robbins' definition again:

> Economics is the science which studies behavior as a relationship between ends and scarce means which have alternative uses.

This definition and his other writings make it plain that Robbins meant that economics is concerned with all human behavior that has economic aspects. This leaves the door wide open for the economist to say that any behavior is his province if he can see in it an economic activity, decision, or institution. But ...

The fact is that the economist of the present day is much more selective than that. There are more economic problems than economists can solve. There is a scarcity of economists too. In any period of history of a society, the economists study that economic behavior which is most interesting to the people living at that time. (Sometimes, and for some societies, no one is interested in economic questions at all, and so there is no study of economics). At the present time, and in this world it is possible to define more precisely what economists study.

It is accurate to say that the concern of economics is not with economic activities in themselves, but with the institutions which make these decisions and perform these activities. These institutions include the family unit, business firms, labor unions, and government agencies.

As you have already seen, there are relatively few activities which are purely and simply economic. Thus the economist's interests reach into areas which are primarily economic or which have an over-riding economic purpose. For example, in the case of the Tsimshian Indians he studies the total organization of the clan because of the way economic issues were intertwined with social and religious issues. In studying the present-day Russian economy, he must also involve himself with government and political theory since government owns that nation's major means of production.

Let's summarize.

Robbin's definition: Economics is the science which studies human behavior as a relationship between ends and scarce means which have alternative uses.

Another definition: Economics is the social science which studies how people decide between alternative uses of scarce resources to satisfy their wants.

Important points:

(1) Because economics is a social science it (1) uses the scientific method, and (2) studies human behavior.

(2) The human behavior that interests the economist is that of the groups known as economic institutions (families, business firms, labor unions, government, etc.) as they participate in economic activities and decisions.

(3) Economics is basically concerned with the scarcity problem that arises when scarce resources have alternative uses. (When a scarce resource has only one use, the scarcity problem is readily solved).

(4) Many human problems have economic aspects but they do not concern the economist since it is hard to apply scientific methods to the problems of individuals.

(5) Economics often overlaps into other social sciences.

Sub-Divisions of Economics

Economists, like most scientists, tend to specialize. Thus, it is convenient to divide the field into separate areas of study. We would like to mention four such divisions.

Earlier, in discussing the total economic system of a society, we used the word macro-economics. "Macro" means simply "big". The comparable word that means "little" is "micro." So the science which studies the economic organizations within a society and the relations between these organizations is called ____________________-economics.
(fill in the blank)

Micro

Economic questions which affect the total economic system of a nation are the concern of (a)____________-economics.

Any economic question of smaller scale is the province of (b)____________-economics.

(a) macro; (b) micro.

Economic questions which are concerned with the family unit or business firms are the province of_______________ - _______________

micro-economics

Economic questions concerned with a labor union or a financial institution are the concern of _______________ - _______________

micro-economics

A study of the effect of union organization on wages in the carpentry trade is said to be (choose one) micro-economic/macro-economic.

micro-economics

A study of the effect on consumer spending of an increase in federal income tax rates is said to be (choose one) micro-economic/macro-economic.

macro-economic

In addition to distinguishing between macro-economics and micro-economics, economists often draw a line between "pure economics" and "applied economics." As so often happens in the social sciences, it is sometimes hard to see where one leaves off and another begins, but we can say:

> Pure economics is the purely scientific part of economics which is concerned with increasing knowledge about economic systems. Like other pure sciences, it is concerned with describing, explaining, and predicting the things being studied.
>
> Applied economics is the use of economic knowledge to solve practical problems that involve economic decisions or economic policy. (Policy is defined as a plan of action or a guide for making decisions).

Here's a question: If a group of economists is asked to study the laws which regulate the electric power industry of the U.S., is the group concerned with pure economics or with applied economics?

The economists' concern is with pure economics.

They would collect information to help them describe how the industry operates under present laws and they would predict what would happen if it was either restricted or encouraged in certain ways. They would, in other words, increase the knowledge about this particular economic system. But there they would stop. It would be up to some other group to decide whether new laws and controls should be imposed.

Let's suppose that a study group is set up to make recommendations as to how much land in a state should be devoted to state parks.

Is this study concerned with pure economics or with applied economics?

This time it's applied economics.

As before, there will be a lot of data gathering (the location and amount of land involved, for instance) and some predicting (expected needs for land for industrial and residential expansion, and so on). But the function of the group is to make recommendations, to set down a plan of action or to provide guidelines with which others may make decisions. Thus this group is concerned with applied economics.

We might sum it up by saying:

In pure economics, we try to increase the body of knowledge in the field. In a sense, we are not concerned what the outcome is so long as it is an accurate prediction of what will happen in a given group of circumstances. The test of pure economics is whether it succeeds in explaining and/or predicting.

In applied economics, on the other hand, we are dealing with the practical problems of the real world. From the start, we know something about what the outcome must be and the job is to make decisions or shape policy which will give us the outcome we seek. The test of applied economics is whether the decisions or policies work in achieving the intended goal.

UNIT II: STUDENT MATERIALS

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UNIT II
LESSON I
STUDENT READINGS

WHAT IS THE PRICE SYSTEM?

The Problem of Coordination

Everyone knows, or thinks he knows, what an economy is, but even experienced economists find it hard to put this concept into words. The difficulty is that an economy is not a tangible entity that you can point to or put your finger on. Rather, it is an aspect of a society, or perhaps a society looked at from a particular point of view. An economy includes the whole set of social rules, customs, and institutions that control how the members of a society cooperate in making, trading, and using exchangeable goods and services. All activities performed in accordance with these institutions are economic activities. The exchangeable goods and services are economic goods or commodities.

The most fundamental of all the customs that constitute an economy is the division of labor. This custom is so familiar and so universal that we are almost unaware of it. It is very ancient: archeologists and anthropologists have not yet encountered a society that was so primitive but that its life was enriched by having some members function as hunters, some as priests, some as warriors, some as artificers (artists and craftsmen). It is not even limited to human societies: there is division of labor in the beehive and the anthill.

Division of labor is not an all or none proposition; it can vary enormously in degree. The frontier family of America built its own house (with some help from the neighbors) spun its cloth, made its clothes, grew its food. Most of the inhabitants of the poorer countries of the world today live in a so-called "subsistence sector" where individual families are nearly as self-sufficient as the traditional Kentucky frontiersman.

But, as these examples show, self-sufficiency can afford only a meager standard of living. Cultural and economic advance require specialization of production and exchange of commodities among specialists. At present the U.S. government recognizes more than 15,000 trades, occupations, and specialties and over 400 different manufacturing industries, in addition to scores of branches of agriculture, mining, construction, and services of various sorts.

With all this specialization comes a vast increase in productivity, but also some problems. All these occupations and industries are organized in the United States into more than 4.5 million business enterprises, large and small, plus several million farmers, professional men, governmental units, and nonprofit institutions. Somehow their efforts have to be coordinated. Somehow the corner hardware store should be there, and be supplied with 2-inch left-handed screws when we want them. Somehow a surgeon must be available in time of need. We usually take this coordination as a matter of course, and are annoyed when it fails. But when our attention is called to it, we realize that it is a very difficult and admirable achievement.

This Unit is about one system of economic coordination: the price system. We shall discuss how it works, and how well it works. It is not the only conceivable system of economic coordination. Even in the United Stated many important activities such as education, the administration of justice and the provision of hospital services are carried on outside the price system.

Indeed, the price system is so hard to understand that there is widespread doubt that it can achieve effective economic coordination, and there is widespread reluctance to rely on it. In the Union of Soviet Socialist Republics most important economic decisions are made centrally on the basis of elaborate calculations that do not rely on prices. Many of the newly developing countries feel that centralized planning and direction will achieve their goals more efficiently and equitably than reliance on the price system. In view of these prevalent doubts and the existence of genuine alternatives, we must consider the claims of the price system not only to guide economic activity but to guide it well.

What the Price System Is

The price system is a system of economic organization in which each individual, including in that term legal individuals such as corporations, decides for himself what contribution he will make to the economy with the understanding that he can sell that contribution at a price acceptable to him and the buyer, and that he can obtain the goods and services contributed by other individuals only at prices acceptable to them.

This system seems so natural to us who have always lived within it that we regard it as inevitable. In point of fact its present form is the result of slow development, and it is still evolving. This is because reliance on individual decisions guided by prices implies certain preconditions in the social and political structure of a society. In the first place, the practice of working for wages must be well established and safeguarded by appropriate legal statutes and social customs. This means that men must not be tied to a particular occupation or employer, but must be free to work for wages or for themselves in a wide variety of trades and occupations. Not only must men be free to work for employers of their own choosing, but no man may be privileged to require others to serve him on any other terms. Just as no man may be debarred by law or custom from any job, so no man may have a prescriptive right to any special employment.

In addition, individuals must have the right to possess private property and to dispose of it or lease it, at their discretion (for a price). They must be empowered to enter into contracts, to borrow and to lend, and to compel compliance with contracts to which they are parties. These are all concepts, rights and privileges that deeply affect the nature of a culture. They have achieved approximately their present state only comparatively recently in the West, emerging rapidly after the decline of feudalism. In many underdeveloped countries these institutions are still so limited that the price system can barely function. In socialist countries, of course, the rights and privileges that underlie the price system have been abolished. Whether a version of the price system can function under socialism is a controversial question of considerable significance to socialist economics.

With respect to the effectiveness of the price system, there are two central issues. One is: can we trust important economic decisions to private individuals motivated by greed and avarice? The very notion is repugnant. Early in the eighteenth century Bernard de Mandeville attempted to defend the price system against the charge of being economic anarchy in a witty poem entitled "The Fable of the Bees: or Private Vices, Publick Benefits." Later in that century, Adam Smith wrote a succinct affirmation of faith in the price system.

> ...every individual necessarily labours to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting...by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By persuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it. I have never known much good done by those who affected to trade for the public good.

But the hand is so invisible that people still doubt that it is there and that it is effective, and not entirely without reason. The claims and counter-claims still crowd the pages of economic and political discussion.

The other issue is whether economic freedom is, for most people, a surreptitious form of slavery--wage slavery. Consider an unemployed man with five dependents. Is he really free to "decide for himself what contribution he will make to the economy," as I have stated? Mustn't he, rather, accept the first job that comes along, whatever the terms? Isn't the whole fabric of rights, privileges and obligations that goes with the price system an elaborate disguise for a new form of slavery for the man in the street? This is the Marxist indictment.

What the Price System Does

The price system performs several tasks. In the first place, it performs the unpleasant function of inducing people to work, using the cruel goad of necessity in many cases. To induce people to work at all is not a difficult problem, and perhaps is performed adequately by our social standards which make it a bit disreputable for a man not to have a job. Ask any man and you will find that there is some job that he would enjoy. Perhaps he would like to be a senator, a corporation president, an actor, or a foreman. The trick is to allocate the work force in appropriate numbers among the 15,000-odd trades, professions and occupations, some of them exhausting, distasteful and hazardous.

Under the price system this is accomplished by having employers offer positions to qualified applicants who apply voluntarily. If the numbers of openings and applicants for a particular kind of work are mismatched, the wage and other terms of employment can be changed. If there are too many applicants for a particular type of work, some men become discouraged by a fruitless search for employment and turn their attention elsewhere. If there is a shortage of men with a particular skill, high wages and the assurance of employment attract men to that trade, while employers are induced to search for ways to run their businesses with less reliance on skills in short supply.

The price system is not the only conceivable means for assigning workers to jobs; two others deserve mention. The most obivous method would be direct bureaucratic assignment of workers by some central labor office. This is what is done in any army. The method suffers from two evident drawbacks. Both drawbacks relate, at bottom, to morale. It is not enough to assign a man to a task; he must be induced to perform it. An army is not efficient at performing economic tasks; the lack of inducements to efficiency is one reason. The other difficulty is that the resentments created by the direct-assignment process are a direct threat to morale. Some jobs are more attractive than others. A man's merits are likely to appear more impressive to himself than to a cold-hearted bureaucracy. As a result, bureaucratic favoritism and injustice will be suspected even when they are not present, and they will frequently be present.

A society where all are subject to bureaucratic caprice for job assignments is not a pretty one to contemplate, even in theory; in practice it is an irresistible invitation to corruption and abuse. The interrelated problems of resentment, corruption, motivation and enforcement are so severe that this method of labor recruitment cannot be proposed seriously in any large society.

A variant of this method has played a central role in the history of mankind. This is assignment by inherited social status. It was very likely the only method available before the traditions of disposable property and free contract were evolved. This expedient attained its highest development in the cast system that now bedevils India. Under that system every man is born into one of some 800 castes and sub-castes; counting minor sub-divisions, the number of inherited statuses rises to more than 5,000. The jobs that a man can accept and those he must refuse are rigidly prescribed by his caste status, and it is as disgraceful to aspire to a job above one's caste as to stoop to one below it. As the division of labor proceeded and the diversity of jobs increased, the number of castes multiplied, and this process was still going on when the caste system was legally abolished. The manorial system in feudal Europe was similar in purpose but less elaborate, and many other societies have developed similar system.

In theory at least, a man in such a society is content to serve in the station of life to which God has called him; all the pressures of society, including organized religion, are enlisted to support a man's self-esteem in performing according to his status, whatever it may be. Because of the impersonality of the system, it is psychologically as possible for a man to reconcile himself to low status as it is to small stature or puny strength.

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But the history of such systems is,in fact, a history of discontent among the lower orders and the economic waste is intolerable. Heredity is no respecter of caste. No modern society can afford systematically to debar talented members from important and difficult tasks, or to assign heavy responsibilities to the highborn inept.

So there seems to be no acceptable alternative to allocating jobs and workers by a free labor market--that is, an economic organization in which workers seek out and offer their services to the employers who offer the most attractive terms, and employers engage the best qualified workers they can afford. This fact is recognized even in societies that proclaim the principle of "From each according to his ability, to each according to his need."

The second function of a price system is to compel consumers to restrain their demands. For one means ,the analogy with military supply is again apt: In the absence of free exchange controlled by prices, the ration has to be issued in kind. Each man, abstainer or chain smoker, receives his four cigarettes a day. This is tolerable in an army, which has other things on its mind than satisfying the whims of its members, but it negates the purpose of an economy which exists precisely to provide its members with the goods and services they want. A society dependent on such rationing not only could not give its members what they want, it would not even be able to find out what they want. And this brings us to the last and most interesting function of price systems.

This is the function of coordinating the efforts ot the millions of organizations and individuals that constitute an economy. This coordination requires that a vast amount of information about the availability of and desires for an inconceivable array of goods and services be collected and transmitted to an enormous number of individuals. Furthermore, the individuals must be motivated to react appropriately to this information.

The task of collecting the vast amount of information required by a modern economy, transmitting it to the people who have to act on it, and absorbing its significance can best be appreciated from the point of view of the new science of information theory. This science, like most sciences, has come into being in response to a growing social problem. The problem in this case is the proliferation of information and of needs to transmit it and obtain it rapidly. A surprising proportion of economic activity in a modern society is devoted to nothing else than gathering, handling, and forwarding information. The telephone and telegraph industries, including the largest corporation in the world, the postal services, the newspaper, magazine and book publishing industries, the new data processing industry, the accounting profession and above all, the educational system are devoted primarily to this end. And still the flood of information is straining the resources of these industries.

The need, then, is to discover ways to increase the efficiency of information handling and transmission; this is the task of information theory. The basic idea of information theory is that all information, in order to be communicated and used, has to be "coded" into "messages" and sent over "channels." Codes and channels range from shouts and traffic signals, at the simplest, to microwave telephone circuits at the most intricate. The quantity of information in a message is measured in a unit called the "bit" which is, roughly, the amount of information gained by learning which of two alternatives is true.

(For example, a red-green traffic light conveys one bit of information. A red-green-yellow traffic light conveys about 1½ bits, each of the digits from 0 to 9 conveys about 3-1/3 bits. After that things get even more complicated. The efficiency of a channel is the number of bits of information that can be transmitted over it in an hour. Information theory strives to devise ever more efficient codes and channels so as to contend with the insatiable needs for information in a modern society.)

It is against this background that the efficiency of the price system as a means for conveying information must be admired. An enormous number of bits of information are compressed into a simple sign like "73c/lb" posted above a disply of meat or a line such as "Wheat, No. 2 ord hard KC bu. . . 2.20" on the financial page. To the reader, be he producer, consumer, or trader such terse messages convey the rewards and penalties involved in buying or selling that commodity with a precision that no other code can match. And such messages contain much other information too. No code ever devised by man can approach the efficiency of this one, which simply evolved. In the absence of a code of such fantastic efficiency, a modern economy would be buried under a blizzard of long and vague messages.

There is another emerging science called "cybernetics," closely related to information theory. Cybernetics studies the behavior and design of mechanisms, organisms, and organizations that receive and generate information and respond to it in order to attain a desired result. The autopilot of an airplane or ship is a cybernetic system which constantly compares the actual direction of the vehicle with the desired direction and makes corrections. The heating system of a house with a thermostat is an even simpler cybernetic system. The eye-hand coordination system of a man or animal is a more complicated instance. The most complicated of all is an economy guided by prices. When an economy is regarded from this point of view, prices and price changes play the role of the gyrocompasses, thermometers and sense impressions of the earlier examples. What cybernetics adds to information theory is the feature of response to information generated and received, and a price system incorporates this feature. Thus the study of prices is the study of a highly elaborated cybernetic system.

These general considerations can, perhaps, be best appreciated in the light of a simple fable. Imagine an economy in which there are only two commodities instead of millions. Let us call them bread and wine. Everybody in this economy is either a farmer-miller-baker or a vintner. Suppose also that this economy produces enough to provide each inhabitant with 15 ounces of bread and 10 ounces of wine per day. This economy is so simple that we can almost conceive of dispensing with prices in it. The harvests might be deposited in community warehouses from which each household is entitled to draw its stated rations of bread and wine. The point to be made is that even under these almost inconceivably simple conditions this non-price method of production and distribution would be intolerably wasteful. And the waste would result from suppressing and ignoring critical information.

In the first place, it would ignore information about the diversity of individual tastes and needs. There would be many fat men who would be glad to give up two ounces of their wine ration to increase their bread ration to 16 ounces, and some thirsty men who would be glad to exchange an ounce of bread for two of wine. If, somehow, all such men could be paired off properly, they would be better pleased without any increase in the total production of bread and wine. To some extent this would happen automatically: some complementary pairs would find each other and trade, just as soldiers trade chocolate bars for cigarettes. But this man-to-man bartering would be awkward, uncertain and time-consuming. We shall see below how a price system can suit individual rations to individual tastes more easily and more precisely.

But there is a still more fundamental kind of information that is suppressed in such a system. The assumed economy produces 1½ ounces of bread for each ounce of wine. How do the farmers and vintners know that these are the correct proportions? Presumably they could be changed: some wheatland could be planted with vines or some vineyards could be sown with wheat. The ration system provides no information useful for guiding this decision, but a price system could and, I shall contend, only a price system could.

Let us suppose that an acre of land could produce either 15 ounces of bread per day or 10 ounces of wine, and that instead of the ration system each inhabitant were given a stipend of 60 louis a day to spend as he pleased, with bread costing 2 louis an ounce and wine costing 3 louis an ounce. Notice that these prices already convey a great deal of information: it takes the same amount of land to produce 30 louis worth of bread as to produce 30 louis worth of wine. This is as it should be. An individual who consumes 15 ounces of bread a day is compelling the society to devote 1 acre to his support. So is an individual who consumes ten ounces of wine a day. Since two such individuals are exerting the same drain on the community's resources, they should be charged the same amounts. The word "should" here refers not primarily to social justice but to information content. Consuming commodities is an indirect way of consuming resources, and a useful function of prices is to inform all concerned of the quantity of resources that is consumed by each act of purchase.

If, at these prices, the inhabitants continue to consume the traditional rations of 15 ounces bread, 10 ounces wine, on the average, all the bread and wine will be sold and things can go on as before. But it is likely that they will not. Suppose, for example, that at those prices people would like to buy an average of 18 ounces of bread per day and 8 ounces of wine. Then there would not be enough bread to meet the demand, and too much wine. This is essential information that could not be elicited even by asking people without reference to prices. If the community were habituated to prices, a market survey might investigate how much bread and wine people would buy at such-and-such prices, but without prices it is hard to know what questions to ask. Even with prices to ask about, the answers to such conjectural questions have proved to be unreliable.

At any rate, people might be content to consume the available supplies if the price of bread rose to 3 louis an ounce and the price of wine fell to 1½ louis. But now the value of resources would be out of kilter. At these prices an acre devoted to wheat would produce commodities valued at 45 louis a day, but an acre under vines would yield only 15 louis. The man who consumed the yield of an acre under wheat would no longer be paying the same as the man who consumed the yield of an acre under vines.

This is a sure signal that some of the vineyards should be converted to wheatfields. When people are buying bread at 3 louis an ounce and wine at 1½ louis, they are indicating that they are willing to relinquish 2 ounces of wine to procure 1 ounce of bread. They are indicating this in the most authoritative way possible, by actually voluntarily relinquishing the wine to obtain the bread. But an acre can be converted from vineyears to wheatfields on terms far more favorable than that. In fact, only 2/3 of an ounce of wine has to be sacrificed to produce an additional ounce of bread. If, therefore, an acre of vineyard were converted to a wheatfield, 15 people could have their daily bread ration increased by an ounce each at a sacrifice of less than an ounce of wine a day each. The prices at which they have been buying bread and wine show that they would be more than willing to do this. This transfer of resources would make each of these 15 people better off without harming anyone else in the community.

The remaining problem at this stage is how many acres of vineyards should be converted to wheatfields. The price discrepancy doesn't tell us that, it merely tells us the direction of movement, and it isn't likely that the vintners, farmers or planning authorities (if any) would know. So the transfer has to be made, in effect, by trial and error. Let us suppose that land is shifted until an average of 16½ ounces of bread and 9 ounces of wine per day is available for each inhabitant. With more bread and less wine available than before, the price of bread would have to fall and that of wine to rise in order to induce consumers to shift their purchases to correspond to the new ratio of supplies. Suppose that the prices that bring demand into line with the altered supplies are 2.67 louis per ounce of bread and 1.78 louis per ounce of wine (The meticulous reader may notice that these figures aren't quite right. Using them, the average person would be spending 44.05 louis a day on bread (16½ X 2.67 = 44.05) and 16.02 louis a day on wine, or slightly more than his income of 60 louis. But they are close enough for illustrative purposes.). When these prices have been established, a 1-acre wheatfield will produce goods worth 40.05 louis a day and a 1-acre vineyard, goods worth 17.80. By the same reasoning as before, more vineyards should be converted into wheatfields. In fact, this process should continue until the harvest consists of 18 ounces of bread per inhabitant per day and 8 ounces of wine. Those outputs will satisfy the demands for both products at prices of 2 louis per ounce of bread and 3 louis per ounce of wine. We have already seen why the conditions of production make those prices appropriate. With those outputs, land will be allocated as well as possible in view of the conditions of production and the tastes of consumers. It will be impossible to transfer land in either direction so as to obtain an increase in one product that consumers deem more than worth the sacrifice in the other product.

This fable illustrates how a price system enables, and indeed compels, consumers to express their preferences in such a way that producers can compare those preferences with the costs of production of different commodities. For simplicity's sake it omits at least three important features of a real-life price system.

But even with all the simplifications, the fable suggests how a price system can make an economy responsive to both the desires of consumers and the potentialities of production. No other system yet devised can collate all the requisite information and present it in such compelling fashion.

The fable of Bread-and=Wineland suggests how an economy looks to a student of the price system. An economy consists of producers and consumers connected by markets in which they exchange goods and services at prices that reflect both the desires of the consumers and the capabilities of the producers. The study of the price system, therefore, divides naturally into three major parts: (1) the study of supply, or the behavior of firms; (2) the study of demand, or the behavior of households; (3) the study of exchange, or the behavior of markets.

UNIT II
LESSON NO. 2

PURPOSE OF THE LESSON

This is a short lesson (2 days) designed to convince even the most skeptical student that there is a legitimate use for theoretical models, and to show how models can be used to explain and to predict economic events.

CONTENT OUTLINE

1. Definition of Scientific Models
   A. General definition of models:

"n., adj., v....-n. 1. a standard for imitation or comparison, a pattern. 2. a representation, generally in miniature, to show the construction or serve as a copy of something. 3. an image in clay, wax, or the like to be reproduced in more durable material. 4. a person or thing that serves as a subject for an artist, etc. 5. one employed to put on articles of apparel to display them to customers. 6. mode of structure or formation. 7. a typical form or style. --Syn. 1. paragon; prototype." *

   B. Definition of scientific models:
      1. Models to explain - show how the parts of a complex entity are related.
         a. street maps show relations between geographical points
         b. cut-away models of auto engines show how engine parts are related.
      2. Models to predict - show what will happen to the future if some set of conditions exist in the present.
         a. the mathematical equations for ballistics missles predict where they will land.
         b. chemical equations predict what will happen if certain chemicals are placed in solution.
      3. Models which are ideal patterns - allow us to compare the real world with the ideal world in an effort to identify changes which could be made in the real world in order to bring it closer to the ideal.
         a. a model student - the non-existent creature who makes straight A's, wins four letters and is student body president--gives a basis for judging the performance of real students.
         b. the circular flow model of the national economy that operates at a constant rate helps us to analyze the real economy.

II. Attributes of a Model
   A. Models are abstractions. To abstract is to withdraw, separate, take away, e.g., to separate by the operation of the mind, as notion of political power from the reality of an actual social organization.

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* The American College Dictionary, Random House, 1963.

1. Abstractions simplify by selecting from the real world only those facts which are important to the purpose of the abstraction --the rest of the world is left out. For example, equations about ballistics missiles take into consideration such things as weight, the thrust of engines, changing air densities, etc. But they do not include the color of the uniform of the soldier who fires the missiles or the political organization of the country of destination.
2. Models restrict the scope of reality by setting up rules or limits.
    a. they ignore extreme cases, e.g., the missiles that blow up on the launching pad.
    b. they assume that the objects or people being studied will always act in the same way, e.g., that the families in the circular flow model will always spend all they earn.

B. Models are never completely realistic because they are not real life but only representations of real life.

1. it is restricted and thus cannot explain or predict everything that might happen.
2. the assumptions about what should or should not be included might not be an accurate representation of reality.
3. when facts about reality are not available, models often include guesses about reality.

C. Forms of Models --a model may take many forms. For example, diagrams, numbers (equations), words and physical representations.

D. Steps in Making Models --there are six basic steps in making models:

1. Select observations from real world
2. Construct model.
3. Test model to see if it explains or predicts accurately
4. Revise model if necessary
5. Test again
6. Repeat 3 and 4 until model explains or predicts accurately

E. Qualities of Valid Models:

1. A model is judged by the extent to which it performs the function it is designed to do.
    a. A predictive model is considered good if it does a good job of predicting.
    b. An explanatory model should provide a good explanation.
2. There is no such thing as a "true" or a "false" model. A model is not reality. A model is a model; therefore truth is not a consideration.

MODELS

(Draft Copy)

This program briefly reviews two major points covered in the motion picture and class discussion about models and then describes a further way in which economists use models.

When you are through, you should be able to:

- List three qualities that all models have;
- Recognize the characteristics of an idealized model;
- Recognize the kinds of assumptions and decisions found in such models.

The foregoing is a preliminary to studying an example of an idealized model.

1. Let's begin by picking up two points already discussed:

(1) The two purposes for which models are used;

(2) The steps involved in making a simple model.

No problem. I remember them. Frame 2

I'd like a fast review. Frame 5

2. Fine. Here's a question:

What are the two purposes for which models are used? (Write your answers on a separate sheet of paper).

3. Models are used to

(1) explain

(2) predict

If your answers were wrong or if you need some explanation Frame 5

If you were correct Frame 4

4. Here's another question:

What are the steps in making a simple model? (Make your list on a separate sheet of paper).

to Frame 6

5. You need a review.

The movie was concerned with two uses of models. The examples of one usage included the football play diagram, the dress pattern, and the computer program for a space shot. All of these models said what would happen in a certain set of circumstances. They were used to __________ (what's the word)?

The models were all used to predict.

Another group of models included a street map and the circular flow diagram seen earlier in this course. These were used not so much to predict as to _________ (what's the word)?

The second group of models was used to explain.

The map explained the relationship of one street to another, for instance. The circular flow diagram explained the relationship of workers and industry.

Since some models serve both purposes, we can say that models are used to explain and/or predict.

To Frame 4

6. These are the steps. Check your answer:

(1) Select observations from the real world

(2) Construct model

(3) Test to see if model explains/predicts accurately

(4) Revise model as necessary

(5) Test again

(6) Repeat steps (4) and (5) until model explains/predicts accurately.

Your own words are acceptable, but your list should contain all the steps and have them in the correct order.

If your answer did not meet these standards	Frame 7
If your answer was satisfactory	Frame 8

7. One way to recall the stages in making a model is to think through the stages of making the dress pattern. The test of whether the pattern was a good model was its ability to predict that a dress would fit if cut according to the pattern.

In making the pattern, the girl used a "cut and fit" method. She made the pattern and then tried it against her. When the pattern seemed right, she used it to make a dress. The dress didn't fit (the pattern had not predicted accurately), so she changed the pattern and tried again. This time the dress did fit. These were the stages:

(1) Select observations from real world	Take measurements
(2) Construct model	First attempt at pattern
(3) Test to see if model predicts accurately	Try pattern for size
(4) Revise model	Fix pattern; make dress

(continued)

7. cont.

(5) Test again	Try on dress
(6) Repeat (4) and (5) as necessary	Dress doesn't fit; so amend pattern, cut material for amended pattern
	Try on new dress
	It fits. Pattern predicts accurately

When you are sure you can list the steps from memory

Frame 8

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8. We have already said what the uses of a model are. Using that information, which of the following are models?

(1) A well-behaved child

(2) A street map

(3) A girl who displays new clothes

(4) The equation $E = MC^2$

(5) A traffic light

(6) A new home at the entrance to a housing tract

Write the numbers of your choice on a separate sheet of paper and then.....

To Frame 9

9. The uses of a model to which we referred are that it explains and/or predicts.

With that as a yardstick, the following are models:

(2) A street map

(4) The equation $E = MC^2$

None of the others listed is a model, at least not in the way we have been using the word.

If you want to see why the other answers were wrong	Frame 10
If you are ready to go ahead	Frame 11

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10. The remaining four examples were not models in the sense in which we have been using the word. That is, none of them is used to explain and/or predict.

It's true, however, that three of them are often called models in another sense -- they are examples or samples of a particular species. However, that is not what we are looking for here.

As we have discussed it so far, the test of a model is whether it explains and/or predicts.

To Frame 11

11. We have noted one characteristic of a model: It explains and/or predicts.

There are others. Perhaps you have remembered them from the movie?

Following are some of the models to which you have been exposed. In what ways are they similar?

- Diagram of a football play
- Dress pattern
- Street map
- Circular flow diagram
- Mathematical formula

Give me a hint to get started	Frame 12
I think I've got it	Frame 14

12. You need a hint. So here are a couple of questions to ask yourself:

(1) Do any of the models listed look like the thing they represent?

(2) Do any of the models tell you anything about the position, shape, or role of one part with respect to another?

I'm still stumped	Frame 13
I think I've got it	Frame 14

13. You're smart to admit it if you're stuck.

Perhaps you recall that in the movie we made quite a point of the fact that in constructing a model we make a selection of observations from the real world. We do not

(continued)

13. Take all the information available. Instead, we use only as much as we need to show how one part fits with another.

The word we used to describe the simplication that comes from using only selected observations was abstraction, a word meaning "to draw from" or "separate".

The amount of information used was sufficient to **show** relationships -- the position and role of each player in the football diagram, the relationship of worker and industry in the circular flow diagram, and so on.

So these are the qualities we hoped you would find in the examples of models:

- They are all abstractions, simplified versions of the real thing.
- They all show relationships

Please go ahead to Frame 14

14. All the models have these things in common:

- they are abstractions (that is, they are simplifications of the real thing; they are unlike the real-life objects concepts they portray).
- They show relationships. (The football diagram, for instance, shows where the players must be in relation to each other if the play is to succeed; the dress pattern shows the relationship between the measurements).

So now we have three characteristics of a model:

(1) It explains and/or predicts

(2) It is an abstraction

(3) It shows relationships

Try to remember these three characteristics. They sum up all we have said so far about models. When we test whether some object or idea is a model, it has to meet all three of these standards.

15. Without looking at the last frame, write down the three characteristics a model must possess.

To Frame 16

16. The three characteristics of a model are:

(1) It explains and/or predicts

(2) It is an abstraction

(3) It shows relationships

The models considered so far have all been fairly simple. An economist uses models like these to explain or predict events in his field. He has an additional way of using models, a way that combines the uses of the simple "explain" and "predict" models and enables him to compare an ideal situation with conditions as they exist in the real world.

The model used is what we may call an idealized model. In creating such a model of some part of the economy, the economist hopes to achieve several things.

First, the process of setting up the model forces him to identify the important factors and to explain the process being studied. These can be very important benefits in problems as complicated as those faced by the economist.

Then, by comparing the model's predictions with events in the real world, he hopes to learn other lessons:

- He may see how the real world falls short of the ideal;
- He may be able to identify factors which could be changed to affect the real world in some desirable way.

Let's pause a moment and have you decide what words are missing in this paragraph:

> When an economist wants to compare an ideal situation with the real world, he prepares an __________ model. Then, in an effort to identify changes needed in the real world, he__________the model's predictions with real events.

to Frame 17

17. When an economist wants to compare an ideal situation with the real world, he prepares an idealized model. Then, in an effort to identify changes needed in the real world, he compares the model's predictions with real events.

An idealized model has all three of the characteristics of other economic models. What are those characteristics?

To Frame 18

18. An idealized model, like other economic models, has these characteristics:

(1) It explains and/or predicts

(2) It is an abstraction

(3) It shows relationships.

Undoubtedly you know what the word "ideal" means. But when we talk of an "idealized model" we are using the word in a rather special way. For example, in an idealized model we assume that:

(a) "Pure" or "ideal" conditions exist. In the model you will study next, for instance, we assume that (i) there are many producers of a commodity, (ii) all produce an identical commodity, (iii) there is complete "freedom of entry" into the business - it costs nothing to start and there are no other obstacles to starting up.

(b) Each decision is made by a "model man" who, given alternatives, will always make the choice that brings him maximum economic benefit.

Look at the assumptions in (a) above: There are many producers of a commodity, all have an identical product, and anybody can be in the business of making this commodity.

Does this describe conditions in the real world: And if it does, can you think of an example:

To Frame 19

19. The assumptions: There are many producers of a commodity, all have an identical product, and anybody can be in the business of making the commodity.

No, these three assumptions, taken together, do not fit the real world. The real world is rarely that tidy.

Some industries, such as wheat farming, might fit the first two assumptions, but the third one (freedom of entry) assumes too much for reality. To use the same example, it takes capital and know-how to become a successful wheat farmer.

Why set up these "pure" conditions if they do not fit the real world? The answer is that the economist uses them in the studies in much the same way that a chemist conducts experiments in a vacuum. Each tries to remove from his investigation some of the factors that might contaminate the findings.

On to the second group of assumptions. We said that a model man, faced with a decision, will always make the choice that brings him maximum economic benefit.

> Let's say that in an economic model we are told simply that a businessman can step up productivity by beating his workers. Will he beat them?

To Frame 20

20. The correct answer is: Yes, he will beat them. No doubt about it. We must assume that the model man will always make the choice that brings his maximum economic benefit. Lacking information on the longterm effects of this policy, you have to assume that he will step up production by beating his workers.

The model man is an economic man, not a real person. You might not want him for a friend, but he is consistent. His decision is the logical one for the rules under which he operates.

To Frame 21

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21. You may wonder why an economist uses models and how it helps him to base his model on an unreal, idealized world.

The reason for using models is simply that, unlike many other kinds of scientist, an economist cannot conduct experiments in many of the matters that interest him.

So instead he uses a model. He uses an idealized model because it helps him to see what happens when events are uncluttered by the complexities of the real world. The purely logical idealized model helps him to understand the real world, and it may show him how the real world can be made more desirable.

It is partly through the use of models such as these that economics fits into government. An economist can use models to study the probable effects of a government's policies on the country's economy, for example, Then, using the model's predictions, he may be able to suggest how to bring about the policies of government.

To Frame 22

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22. Let's review a few key points.

Models are used to explain and/or predict. How else does an economist use models? (Write your answer).

To Frame 23

23. An economist also uses models to compare an idealized model with the real world. He does this to try to identify changes needed in the real world.

Your answer can be in your own words, but it should at least contain the words underscored or others that mean the same thing.

If you did not get it right, you'd be smart to review from Frame 16

If your answer was satisfactory Frame 24

24. Of the following statements, which, if any, are acceptable assumptions on which to base an idealized model?

(a) All business decisions are approved by government.

(b) Government has no control over business.

Your choices: (a) (b) Both Neither

To Frame 25

25. Both are acceptable assumptions on which to base an idealized model.

This is not to say that either assumption is necessarily true or reasonable. It merely means that in order to study some aspect of economics we might say, "We will start by supposing that..."

To Frame 26

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26. Here's another example to consider:

A worker has a choice of two jobs. One is in the town in which he lives, the other involves a move to a distant city. He would be better off financially if he moved. His wife is urging him to stay put, however. She wants to be near her ailing, aged mother, and she wants their son, now in his senior year, to graduate from the high school he has attended for 3½ years.

In an idealized model, is there any doubt about which job the worker will take?

Yes	Frame 27
No	Frame 28

27. You think there is some doubt about which job the worker will take?

It looks as if we have not made something clear.

In real life, there might well be some doubt about what the worker would do. He would balance the appeal of the job against the wishes of his family. Probably he would consider many more things than are presented in the problem -- the cost of moving, the prospects of the two jobs, and so on -- before reaching his personal decision.

But in an idealized model, most of this doesn't count. We assume that given a choice, he will pick the alternative that promises the greater economic benefit. Since the desire of his wife and son are given no economic value in the problem, they do not affect his decision. The economic man will go where the most money is.

Please return to Frame 26

28. You say that in an idealized model there is no doubt about which job the worker will take?

In that case, which one will he pick?

The lower-paid job in his present town	Frame 29
The high-paid job in the distant city	Frame 30

29. You say that he will take the lower-paid job in his present town.

Perhaps you feel that the wishes of his family are more important than financial gain?

In real life, you might be right. But real-life decisions like this are never simple. Even if you had a lot more information, you might not be able to be sure of your prediction. (In fact, the more information you had, the more uncertain you would probably be!)

But in an idealized model -- and that's what we are considering -- your answer is wrong. The rules of the game say that we can be quite sure that people will always make the choice that offers the greatest economic benefit. In this problem, the job which promises the greatest economic benefit is simply the one that pays more. All we are told is that the out-of-town job will leave the worker better off. But that is enough. The feelings of his family have nothing to do with the issue.

Please return to Frame 28

30. You're right.

In an idealized model, the worker's decision is simple. He seeks the maximum economic benefit. The out-of-town job pays more. That's the one with maximum economic benefit. That's the one he will pick.

In real life, a man might find this a very difficult decision to make. In an idealized model, as we said earlier, the choice is uncluttered by the complexities we have to face in real life. The decision is made simply on the basis of economic benefit.

To Frame 31

31. As you can probably see, the decisions involved even for a single family might be incredibly complicated if we did not restrict the rules. Imagine the confusion if we tried to account for individual preferences and prejudices in a model relating to several million people!

It isn't hard to see why the economist prefers to stick to his simple-minded but completely logical model of the economic man.

UNIT II
LESSON 3
STUDENT READINGS

THE MARKET SYSTEM

The purpose of this essay is to describe how the market system sets prices and resolves the what, how and for whom questions.

I. The Market

Most of us, if asked what a market is, would say that it is a place where things are bought and sold. If asked to name some markets, we might think of a supermarket, a produce market or the stock market. Such answers would be in no way incorrect and they would be justified because the word has been used in this way for centuries. In the history of our own western culture, the market and the church have always been the two main centers of social life. In the middle ages, each town had its market square where farmers, tradesmen and merchants set up stalls and sold their wares. If we visited many of the old cities and towns of Europe or South America, we would see the central position of the markets, and very often we might still see them filled with farmers and tradesmen, as they have been for centuries.

Economists define market in the following way: A market is the total number of buyers and sellers of a particular good or service who, by their competition, determine the price and the quantity sold of the good or service.

Defining market as a place where buying and selling occur, while accurate in earlier times, is inaccurate today because there is seldom a centralized place of exchange where all of the buyers and sellers of a commodity gather to make the transactions.

In our economy most important markets have no precise geographical boundaries. The geographic boundaries of the market for a good depend on the nature of the product and the location of the people who compete in buying and selling it. Some goods are sold in a local market, some in a national market, and some in an international market. Rarely does the market for a good or service have a specific location.

Typical markets in our own economy which seem to have a location are the stock market, the commodity markets, wholesale garment markets and retail markets for the commodities we consume in our households. At first glance one might think that the New York Stock Exchange, where corporate stocks are traded, has a definite geographical location. This, however, is not the case, for, even though all of the transactions are made on the "floor" of the Exchange, the actual buyers and sellers are spread all over the world.

The same is true of commodity markets where the staple farm products and the major industrial raw materials are traded. Buyers and sellers of wheat, cotton, corn and coffee and of hemp, rubber, copper, cobalt and castor oil might be anywhere in the world. Examples of local markets are markets for such things as fresh food and for personal services; but even in these examples it is diffcult to determine precise geographic boundaries, because the price of the product is affected to some extent by buyers and sellers of the product in other local markets for the product. In order to understand how buyers and sellers in compeition establish prices and quantities sold, we need to examine both supply and demand separately.

II. Demand

Demand has a special meaning in economics and it must be abided by when used in describing a market. All of the people who want to buy a commodity are said to make up the demand side of a market. The demand for the commodity is the amount which buyers in a market will buy on a certain day at each possible price.

Demand is not one number representing quantity; it is a table which lists the prices and next to each price the quantity which will be bought at that price. The demand for a good or service can then be put on a graph and the resulting line is called a demand curve.

We can illustrate demand by showing a demand schedule for one product, "Frosty Freeze," in a model market--the world of the Peanuts comic strip. This world suits our purposes because it is already a model and because there are a limited number of inhabitants: Charlie Brown and his sister, Lucy, Linus, Schroeder, Frieda, Pig Pen and Snoopy.

A demand schedule is a table which relates prices of a commodity to the quantity demanded at each of these prices. The table below shows the amounts demanded at each price by each Peanut character and in the total market (the sum of all the separate quantities demanded).

SCHEDULE I

Price	Quantity of Cones Demanded Per Week, October, 1964								
	Charlie Brown	Charlie's Sister	Lucy	Linus	Schroeder	Frieda	Pig Pen	Snoopy	Total Market
5 ¢	7	7	7	5	2	14	3	0	44
6	7	7	5	4	1	13	2	0	39
7	7	7	4	3	1	11	2	0	35
8	7	6	3	3	1	9	1	0	30
9	6	5	3	2	1	8	0	0	25
10	6	5	2	2	1	7	0	0	23
11	5	4	1	2	0	6	0	0	18
12	4	4	1	2	0	6	0	0	17
13	4	3	1	1	0	5	0	0	14
14	4	3	0	1	0	5	0	0	13
15	3	3	0	0	0	5	0	0	11

INDIVIDUAL AND MARKET DEMAND SCHEDULE FOR FROSTY FREEZE CONES IN THE PEANUTS MARKET, OCTOBER, 1964

It is easy to imagine why each of these children buys the number of cones he does at the listed prices. Charlie Brown has 60 cents allowance; he likes one cone a day and will spend all of his income to maintain his standard of living. His sister has only 50 cents and wants to keep up with Charlie, but she must reduce her purchases further as the price rises. Lucy has 45 cents a week, about one-third of which she spends on ice cream and drops out of the market when the price is too high. Linus has a quarter a week and spends it all on ice cream. Schroder, a dreamy musician, has 75 cents but won't spend more than 10 cents a week for cones. Frieda is the wealthiest child with an allowance of $1.50 a week. She loves Frosty Freeze but will never spend more than about half of her income on it. PigPen has a $1.00 but wastes so much of his ice cream from getting it dirty that he only buys it when it is dirt cheap. These individual demand schedules form the effective demand for Frosty Freeze in the Peanuts Market.

Only Effective Demand Is Important in the Market

There is still one creature unaccounted for--Snoopy. He loves Frosty Freeze with a passion and begs so successfully that he eats more of it than any of the others. However, his demand is always zero because he has no money. Demand has to be effective before it has any importance in the market; it has to be backed up by the ability to pay. Effective demand is illustrated by the old English saying, "if wishes were horses, beggars would ride." The market responds only to effective demand, so really, Snoopy is never even in the market.

III. The Negative Influence of Price on Demand

People tend to buy less of a commodity at higher prices (Lucy buys more ice cream at 5¢ than at 13¢). This is so because of two tendencies in all of us: 1) as we consume larger and larger amounts of the same thing (say, candies or movies) the increase in satisfaction from the increases tends to decline, and 2) we have only a limited amount of money to spend. If we try to gain the most satisfaction within our income, prices are important. If a commodity we want has been too expensive for our budget, we may buy it when the price falls. For a commodity we already buy, we tend to buy more of it when the price falls. Sometimes when the price falls, we can substitute the commodity for something else we have been consuming (when the price of steak drops we buy more steak and less hamburger). Thus, lower prices can lead to greater satisfaction and higher prices will decrease the amount of satisfaction achieved with a given income.

Obviously, stores would not have sales or lower prices in order to clear out merchandise if this were not the case. Merchants know that many housewives who have not been able to afford T-bone steak at $1.35 per pound will buy it on sale at $1.00. Merchants also know that those who have bought steak at $1.35 per pound will probably buy more when the price is only $1.00 because housewives will substitute T-bones for round steak and chiken.

Some Individuals Do Not Respond to Price Changes

If we look once more at the demand schedule for the Peanuts Market, we see that most of the buyers tend to buy less when price rises; however, this is not true of Charlie Brown and Linus. Both of them are indifferent to the price increases and they only buy less when they run out of money. For C harlie and Linus, ice cream cones are almost a necessity. Because there are people like this, we cannot say that everyone buys less as prices rise. Even though some individuals do not respond to changes in price, this does not cause much trouble when we analyze the functioning of a market. Charlie Brown and Linus do not change the normal characteristics of the Peanuts Market. When we add all the demand schedules together, the market demand schedule shows a steady decline in the amount purchased as the price rises. Almost all markets show the same characteristics. For most markets we can say that people will buy less as prices rise, and more as prices fall. The market demand schedule describes group behavior. It describes the typical tendency of buyers.

The Influence of Substitute Commodities on Demand

Because we can almost always find substitutes for a commodity if its price goes too high, the quantity demanded of a commodity will be closely related to its price. With every rise in the price of a commodity, some people will buy less of the commodity and satisfy their wants with substitute commodities. With every fall in the price of a commodity, some people will be willing to purchase more of the commodity and use it as a substitute for something which they have been consuming.

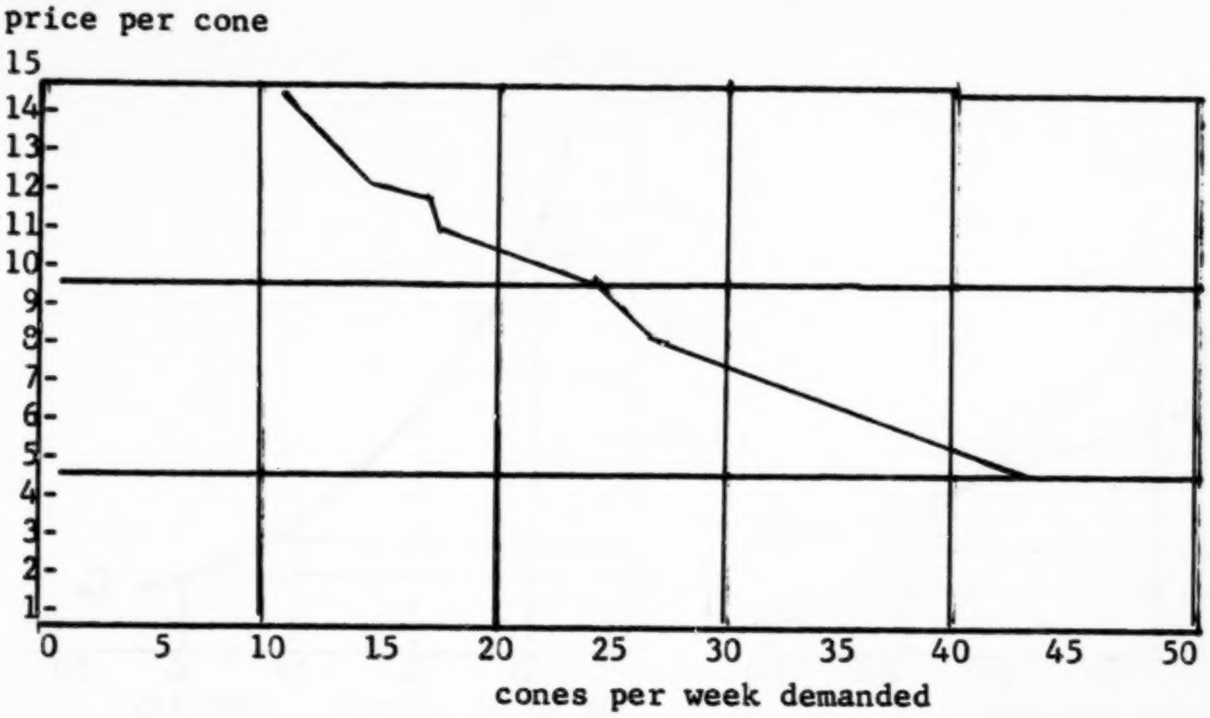
The existence of many commodities which can be substituted for one another requires us to choose what we will consume. In making our choices we must economize if we wish to get the greatest benefit from a limited income. The need to economize makes us sensitive to prices. We tend to buy more of a commodity when the price falls, and less of it when the price rises. This is the same as saying that when the price of a good falls, we tend to buy less of substitute commodities, and that when the price rises, we buy more of cheaper substitutes. For instance, when the price of butter increases, people tend to buy less butter and more margarine than they did before. The prices of commodities allow us to calculate their real cost in terms of substitute commodities and thus to make our decisions as to what we will purchase.

V. Demand Curves

The information listed in a demand schedule can also be shown by means of a demand curve. A demand curve is a graphic presentation of the demand schedule. It is a line graph showing the amount which will be purchased at each price. These curves are very useful because it is often easier to understand the relationship between prices and quantities if we can see it plotted on a graph. The demand curve can be thought of as a mathematical model of the demand side of a market. It shows a very important relation--the relation between prices and quantities people will buy (an explanation of how a graph is constructed and a curve is plotted will be the subject of a special program.) Figure 1 shows the demand curve for the demand for Frosty Freezes of the Peanuts Market.

Figure 1.

DEMAND CURVE FOR FROSTY FREEZES IN THE PEANUTS MARKET



On all of the graphs showing demand curves, prices are measured on the vertical axis and quantity on the horizontal axis. A demand curve is constructed by plotting a point for each price and quantity. The distance from the horizontal axis equals the price, and the distance from the vertical axis equals the quantity. If we connect the points for each price and quantity the result is a demand curve as in Figure 1.

The Slope of the Demand Curve and the Effect of a Price Change on Quantity Demanded.

The shape, or slope, of the demand curve tells us how much more of a commodity will be sold when the price falls and how much less will be sold when the price rises by a certain amount. This is called price sensitivity. Figure 2 shows several possible shapes which demand curves can have. (A demand curve can be a straight line. A straight line is a "curve" with a constant slope.

Figure 2

Demand Curves Showing Price Sensitivity

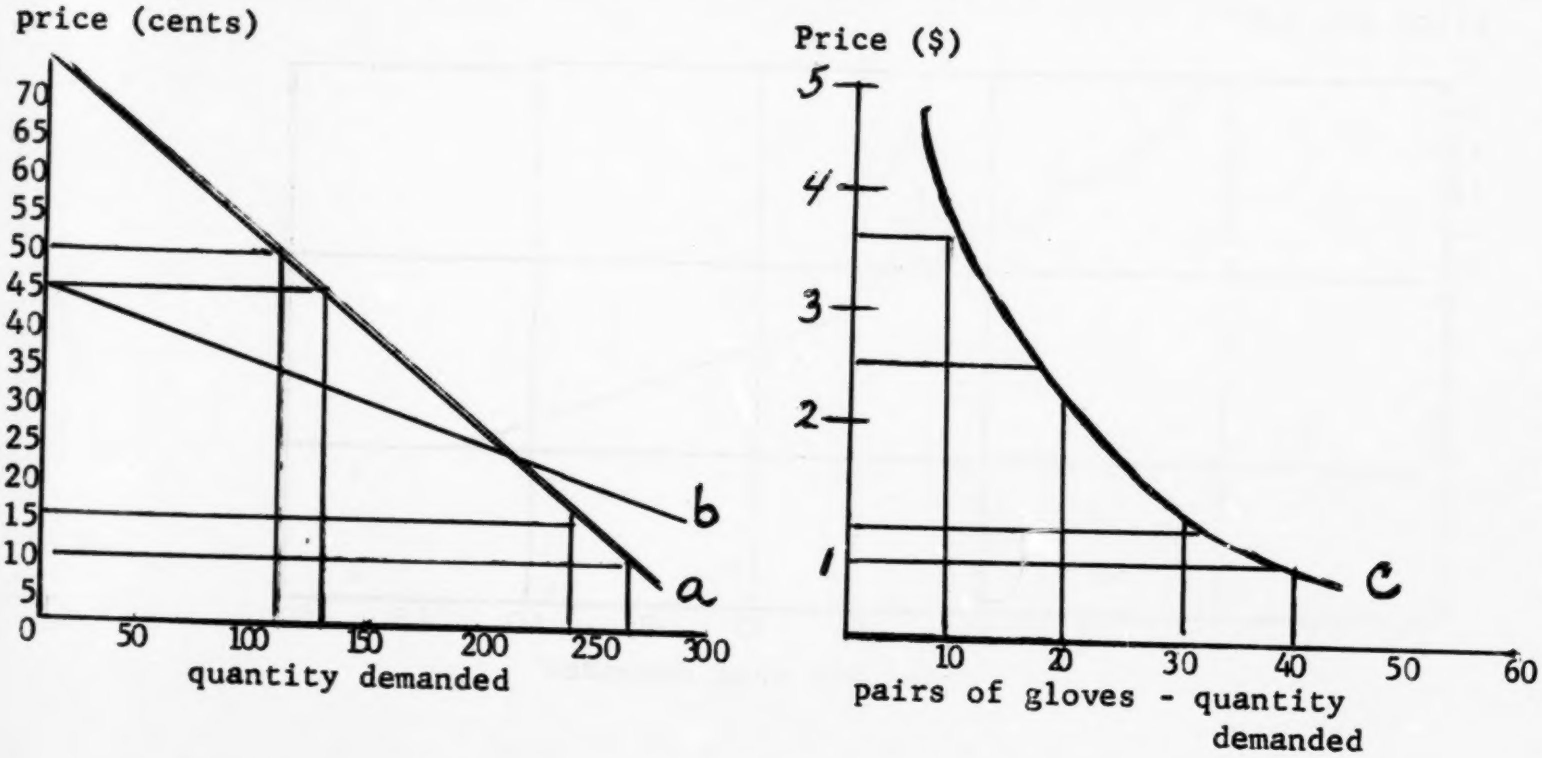


Figure 2 shows two straight line demand curves, a and b. A Curve which is a straight line has a constant slope. This means that for a given change in quantity demanded, the price changes by a constant amount. For curve a in Figure 2, how much does price change when quantity changes by 20, and is this true for any part of the line? (The answers are 2½ or 3¢, and yes) Which of the two curves a or b shows less sensitivity of quantity demanded to price? (The answer is curve a, because for curve a a change of 20 units purchased requires a price change of 5¢, whereas for curve b, 20 additional units will be purchased if price drops by 2½¢)

For a straight line demand curve, the steeper the slope of the curve, the less sensitive is quantity demanded to price. Quantity demanded is sensitive to price if the slope of a straight line demand curve is quite small, that is, close to horizontal.

Most demand curves are not straight lines, but are really curves, like curve c , the demand for gloves, in figure 2. The slope of curve c is different for each point on the line. We can see this by finding out how much price changes when quantity demanded increases by 6 at 10 and 30 pairs of gloves demanded. To get people to buy 6 additional pairs of gloves when the quantity is 10, the price must drop a dollar, from $3.60 to $2.60. However, to get people to buy 6 additional pairs of gloves when 30 pairs are already being sold, price need drop by less than 40¢, from $1.40 to a little more than $1.00. The slope of curve c declines as quantity sold increases.

Elasticity of Demand

When the quantity demanded of a commodity is highly sensitive to price changes we say that the good has an elastic demand. For example, the demand for sports cars is usually elastic. Few such cars will be purchased at a high price, but a small change in price will bring about a large change in quantity sold, relative to the change in price. On the other hand, the demand for a necessity such as milk is usually inelastic. There will not be a great deal more milk bought at a lower than at a higher price.

Why is the demand for sports cars elastic and the demand for milk inelastic? The reason is that sports cars are a luxury; they are expensive to be begin with, and people spend a relatively large partof their income on them; finally, this money could very easily be spent on substitute commodities. Milk is a necessity. It does not cost much money and there are almost no substitutes for it.

If we analyze the demand for any commodity in its usual price range, we can normally predict its elasticity of demand by answering the following questions:

1. Is a large proportion of the usual family income spent on the commodity?
2. Is it considered a physical or social necessity of life?
3. Are there a large number of substitutes available? If the answers are yes, the good has an elastic demand.

Obviously the answers would vary between societies and, within any one society, people will respond to the price changes of a commodity very differently. Generally speaking, those commodites which are either necessities or cost only a small proportion of the average family income have an inelastic demand. In most societies basic shelter, fuel and basic food and basic clothing items have an inelastic demand. However, in the United States automobiles and electric appliances often have inelastic demands, relative to other products, while in most of the world the demand for these things is quite elastic. Why is this so?

By contrast, commodities which are luxurious or cost a large portion of the average family budget generally have an elastic demand. Expensive jewelry, luxury apartments, exotic food, high fashioned clothes and high powered automobiles all show a high elasticity of demand.

There are commodities which we normally considered necessities which nevertheless show a high elasticity. For example, many kinds of medical and dental care have elastic demands. People usually believe they would always purchase them when needed, but this is often not the case. The quantity purchased of many of these services is so sensitive to price changes, the economist would list these goods and services as luxuries. This is because, though medical care is a necessity for those who can afford it, it is a luxury for the poor or the elderly who might use many more services if they could afford them.

Elasticity of Demand for a Product at Different Prices

For almost any commodity, demand is elastic at relatively high prices and inelastic at relatively low prices. Medicines offer very good examples of such commodities. They are a good example because often a new drug is initially high priced, and the price falls for various reasons. Penicillin had this development. The drug for high blood pressure, reserpine, was so expensive when it first appeared that most people who suffered from high blood pressure could not afford it. The drug was a luxury with an inelastic demand, for the quantity sold increased rapidly as the price fell. At present the price is low enough so that almost everyone who needs the drug can afford it. Any further fall in the price would lead to only a small increase in quantity demanded; the demand is inelastic at low prices.

There are also examples of a change in the elasticity of demand for a product. This often occurs when good substitutes for a commodity become available. For instance, before the invention of the sewing machine, handmade shoes were a necessity and large changes in price had little effect on demand. Now, they are a luxury with an elastic demand because cheaper shoes are available for purchase.

What Determines the Demand for a Product on a Particular Day?

A demand schedule shows demand for a commodity at a particular time, that is, the amount which people will buy at each price. How do you know that people will buy these amounts at these prices? Are there not other factors besides price which determine how much they buy? What would happen to the amount of Frosty Freezes demanded at each price if the following things changed in the Peanuts world?

1. The price of substitute commodities.
2. The amount of money which the children have to spend.
3. The tastes of the buyers, i.e., their desire to buy the commodity.
4. The appearance on the market of new substitute commodities.
5. The expectation that the price or availability of the commodity will change in the near future.
6. The hopes and fears for the future which influence the way the children spend their money.

Each of these things can influence demand in a predictable way. We have already seen, in the example of steak and hamburger how the change in the price of a substitute commodity will influence demand. The effect of another factor, income, can be seen if we imagine what happens to the demand for a product when families lose income during periods of depression. If family income drops, the demand for most products will drop. People will buy less --shoes, meat, etc. -- at the current price of these goods.

If one remembers the brief popularity of hula hoops a few years back, the importance of taste is clear. A good example of what a substitute commodity can do is vividly illustrated by the way in which the introduction of T.V. has brought a decrease in the demand for radios and movies. How expectations of changes in the future can alter demand is dramatically illustrated when people hoard during natural disasters or panics.

Market Demand Conditions

The factors listed in the Peanuts example above are called demand conditions. When we derived the demand schedule for Frosty Freezes, we actually assumed that all these factors were unimportant because they were fixed-none of these things are changing. If they do change, then demand changes--there is a change in the amount the children buy at each price. Whenever we give a demand schedule or curve for a good or service, we are assuming that the demand conditions of the market are stable.

A Change in Market Demand

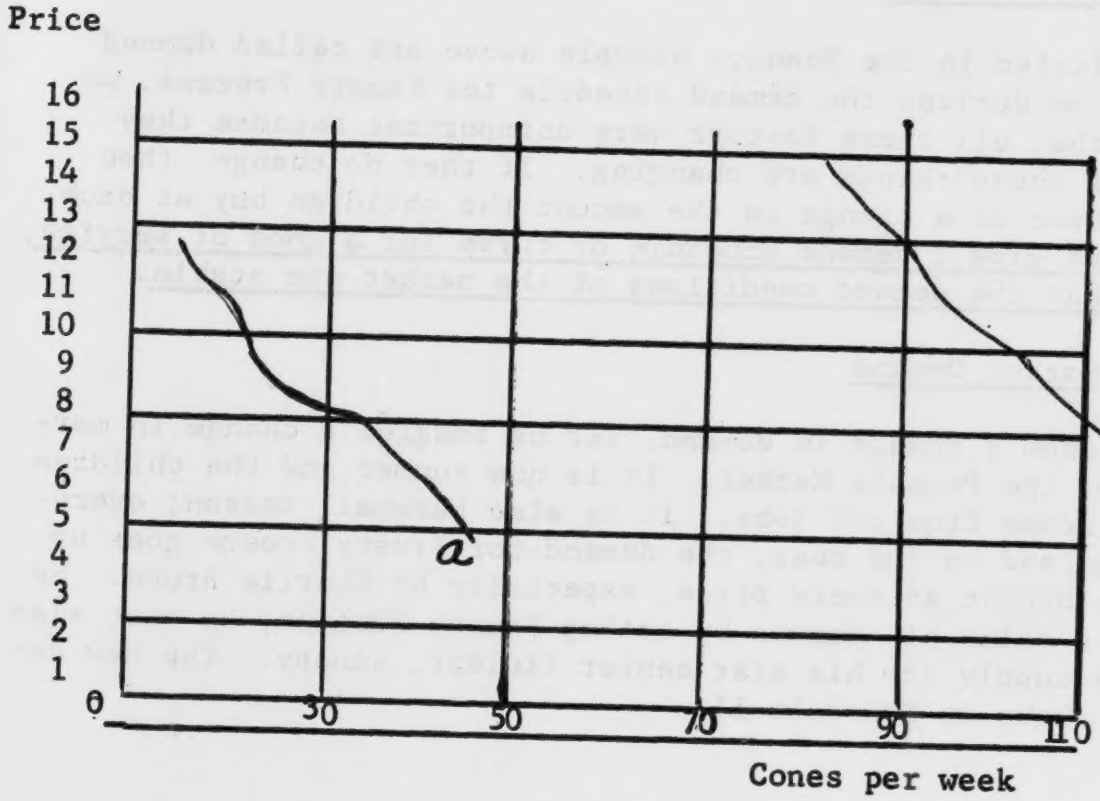
In order to show a change in demand, let us imagine a change in market conditions for the Peanuts Market. It is now summer and the children have additional income from odd jobs. It is also baseball season; everyone is on the team, and in the heat, the demand for Frosty Freeze goes up sharply. More is bought at every price, especially by Charlie Brown. He is the manager who calms his nerves by eating Frosty Freezes; he must also purchase a steady supply for his star center fielder, Snoopy. The new demand schedule is shown in Schedule II.

SCHEDULE II

	Cones Demanded Per Week, Last Week of August, 1963								
Price	Charlie Brown	Charlie's Sister	Lucy	Linus	Schroeder	Frieda	Pig Pen	Snoopy	Market
5 ¢	49	14	14	12	7	21	10	0	127
6	49	14	12	11	7	21	9	0	123
7	49	14	11	10	7	19	9	0	119
8	49	14	10	9	7	17	8	0	114
9	47	13	10	9	7	16	7	0	109
10	44	12	9	9	7	15	7	0	103
11	41	11	8	8	7	14	7	0	96
12	39	10	8	8	7	12	7	0	91
13	38	10	8	8	7	11	7	0	89
14	37	10	7	8	7	11	7	0	87
15	36	9	7	7	7	11	7	0	84

The demand curves for the two demand schedules (winter and summer) are shown in Fig. 3 below. The original schedule is plotted as curve a and the new schedule as curve b.

Figure 3



Demand, A Summary

The demand side of a market is made up of all the buyers of the good or service. Demand for the good or service is defined as the amount of the commodity which will be bought at each possible price, assuming demand conditions are given and fixed. Demand is described by a demand schedule or demand curve.

Market demand conditions are all the other factors, besides price, which affect the amount people will buy. Important demand conditions are: income of buyers, prices of substitute goods or services, tastes of buyers, expectations of buyers about the future.

The relation between price and quantity demanded is negative. That is, people tend to buy more of most goods or services at lower prices. The demand for some goods and services is more sensitive (responsive) to price than for other products. If demand is sensitive to a change in price, demand is elastic; if it is insensitive, demand is inelastic. Elasticity of demand of a good or service depends on three things: 1) the need for the good; 2) the number of substitutes for it; 3) the cost of it as a per cent of what people have to spend.

Generally, the slope of the demand curve indicates the elasticity of demand of the good or service. The steeper the slope, the less elastic (less price-responsive) the demand. However, it is also true, that for almost any good or service, demand will be elastic if the price is high enough, and demand will be inelastic at very low prices.

A change in demand for a good or service is defined as a change in the demand schedule or curve, that is, a change in the amount purchased at any particular price. If demand increases, the demand curve shifts to the right; if demand decreases, the demand curve shifts to the left. Demand for a product changes whenever demand conditions change. A rise in income will usually increase the demand for most products. A decline in the price of a product will cause a decline in the demand for substitute products.

VI SUPPLY

Supply Defined.

Just as the demand schedule shows the amount of a commodity which will be demanded at each price, so the supply schedule shows the quantity of a commodity which will be supplied at each price. Buyers tend to buy more of a commodity at lower prices, but sellers are usually willing sell more at higher prices. Market supply is the total amount which all sellers will supply at each price.

Supply Schedules and Curves

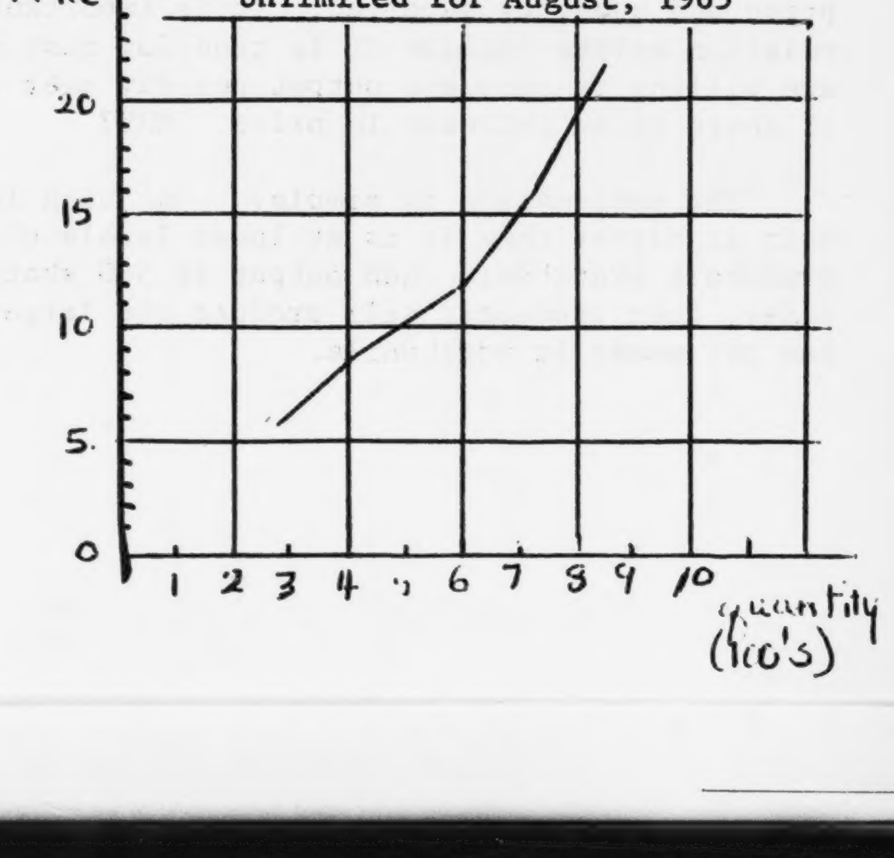
We will use imaginary data for the skateboard market in August, 1965, to illustrate market supply. Table 3 shows the supply schedule for Ace Skateboards, Unlimited; this table shows the number of skateboards which Ace Skateboards will produce per day, given the supply conditions existing in the industry in August, 1965. The actual amount the company will sell depends on price; and the higher the price, the more skateboards the company is willing to produce and sell.

The same information is shown as a supply curve in Figure 4. Supply curves are drawn similarly to demand curves in that the vertical axis is used to measure price, and the horizontal axis measures quantity.

Table 3
Supply Schedule for Ace
Skateboards, Unlimited
August, 1965

Price per Skateboard	Quantity Supplied per day
$ 6.00	290
8.00	400
10.00	500
12.00	600
14.00	675
16.00	732
18.00	780
20.00	820
22.00	850

Figure 4
Supply Curve for Ace Skateboards,
Unlimited for August, 1965



Since we are making up the example anyway, let's assume that the skateboard market is highly competitive -- that is, (1) there are a lot of firms, (2) the skateboards of one firm are exactly like those produced by every other firm, (3) each firm has an equal share of the market. There are 500 skateboard manufacturers, each producing 1/500 of the skateboard output, and each producing exactly the same kind skateboard. Each firm is just like Ace Skateboards, Unlimited. Table IV and Figure 5 show the market-supply schedule and curve for skateboards in August, 1965. At each price, quantity supplied by the total market is 500 times the amount supplied by Ace Skateboards.

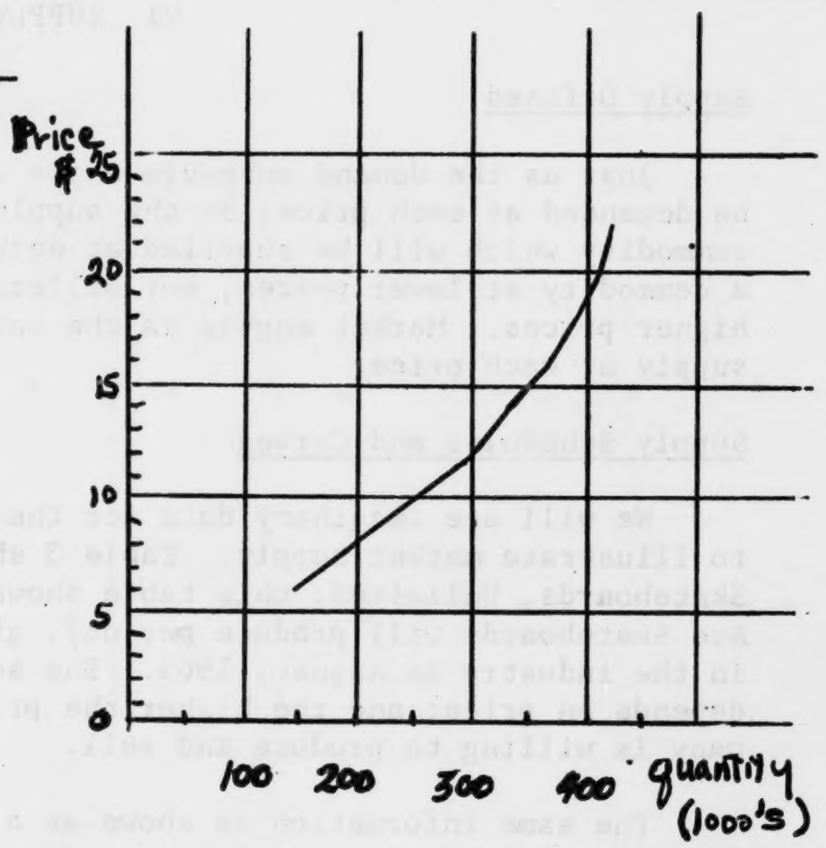
Table IV

Market Supply Schedule for Skateboards
August, 1965

Price per Skateboard	Quantity supplied per day (500 X Ace Supply)
$ 6.00	145,000
8.00	200,000
10.00	250,000
12.00	300,000
14.00	337,000
16.00	366,000
18.00	390,000
20.00	410,000
22.00	425,000

Figure 5

Market Supply Curve for Skateboards
August, 1965



Why the Amount Supplied is Greater at Higher Prices

In this case the supply schedule and curve tell us that skateboard producers vary output with price, and that there is a positive relation between price and quantity supplied. It is important to explain why this positive relation exists because it is true for most markets. In general, producers are willing to increase output per day over their current production, only if there is an increase in price. WHY?

The explanation is simple. At high levels of production, cost per unit is higher than it is at lower levels of production. If it costs more to produce a skateboard when output is 500 skateboards a day than to produce 400 a day, then producers will produce the larger amount only if the price they can get makes it worthwhile.

The real question is, why does it cost more to produce a skateboard when output is 500 skateboards a day than when it is 400 a day? One might easily expect that the average cost of producing a skateboard would be less at higher levels of output, because skateboards could then be mass-produced. If Ace Skateboards want to increase daily output, from 400 to 500 boards a day for a month, management will not buy new equipment to increase production. If the company were considering doubling output permanently, management might decide to expand operations and build a new factory, but even so, it might take a year before the new plant is in operation.

What we're saying is that if a manufacturer wants to increase output per day using his existing equipment, costs increase more than proportionately to the increase in output because of the law of diminishing returns.

The law of diminishing returns states that if the amount of one input is fixed, there is a decline in additional output yielded per additional unit of the variable input. That is, the ratio $\frac{\text{Increase in output}}{\text{Increase in input}}$ gets smaller at higher levels of output.

Under these conditions the average cost of producing a skateboard must be higher at higher levels of production, because less additional output is produced for each additional man; and the additional man is paid the same hourly wage the other workers are receiving.

The effect on costs of the law of diminishing returns is shown for Ace Skateboards in Figure 6 and Table 5 below. The graph shows total cost of production at different levels of daily output. The fact that the slope of the curve gets steeper at higher levels of output means a greater addition to cost per 100 units of increased output.

An example should prove this to you. Look at the curve in Figure 6 on the next page, and figure out how much additional cost is necessary to increase output from 500 to 600 boards a day.

How much increase in cost is necessary to increase output from 600 to 700 boards a day?

Your answers should be 1200 and 1550.

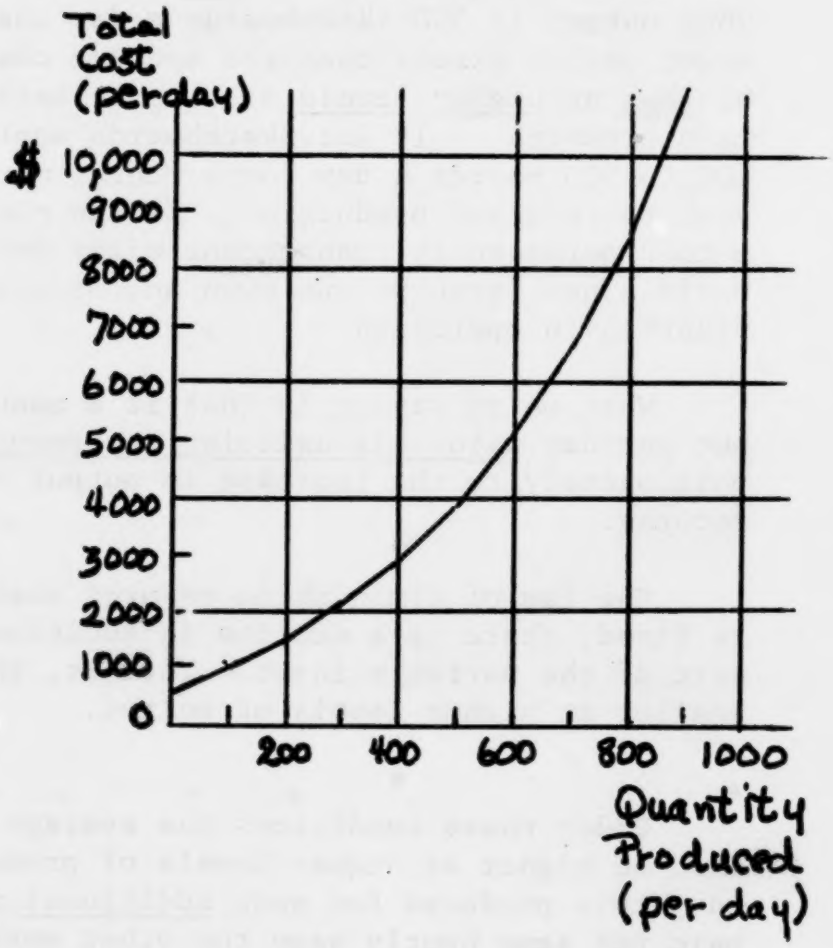
Table 5

Total Cost of Producing Skateboards at Different Levels of Output Per Day

Total Output per Day	Total Cost per Day
0	$ 500
100	1,000
200	1,500
300	2,100
400	2,900
500	3,900
600	5,100
700	6,650
800	8,500
900	11,000

Figure 6

Total Cost Curve, Ace Skateboards



Changes in Supply: Shifts in the Supply Curve

The market-supply schedule and curve for skateboards is for August, 1965. This information on supply tells how much will be supplied at different prices, given the supply conditions existing in the skateboard industry in August, 1965. What are supply conditions and what difference do they make?

Supply conditions are all of the factors which affect cost of production. If supply conditions change, costs change. The major supply conditions (factors affecting cost) are:

1. prices, or the cost of using all inputs;
2. techniques of production--technology, organization of production, kinds of inputs used and the proportions of inputs used together;
3. the nature of the product itself.

If wage rates increase, or if the quality of labor available declines, labor costs increase, and the amount of output Ace Skateboards will be willing to produce at the current price will drop. If a new sanding machine is invented which reduces sanding time by one-half, and requires less labor, the effect will be to change the proportion of capital to labor used, and to reduce cost per unit produced. The result will be that the manufacturer will be willing to produce more output at the current price, using this new machinery. If someone invents a better and more expensive ball-bearing to use on skateboards, this improvement in quality of skateboards will raise the cost of producing a skateboard, and producers will not want to sell as many boards at the current price.

In general, whenever there is some change in supply conditions (cost of production), there is a change in supply (the amount offered for sale at each price). This means that there is a new market supply schedule and curve. Assume that wages rise in the skateboard industry. The amount supplied at each price will now be less. This is shown in Table VI and Figure 7. If you compare these with Table IV and Figure 5, you will see that for each price, less is supplied. This is an instance of a decline or fall in market supply--less is produced for sale at each price. A decline in supply shows up in the supply graph as a new supply curve which is to the left of the old supply curve. When supply declines, the supply curve shifts to the left. To see for yourself the effect of the decline in supply, use the data from Table IV to plot the first supply-curve curve in Figure 7. It should be to the right of the new supply curve, and closer to the horizontal axis.

When costs drop, supply increases; firms offer more output for sale at each price. The new supply curve is to the right of the old one; the supply curve shifts to the right when supply increases. If a new machine reduces cost per skateboard, then supply will increase, and the new supply curve will be to the right of the old one. At each price, more skateboards will be offered for sale.

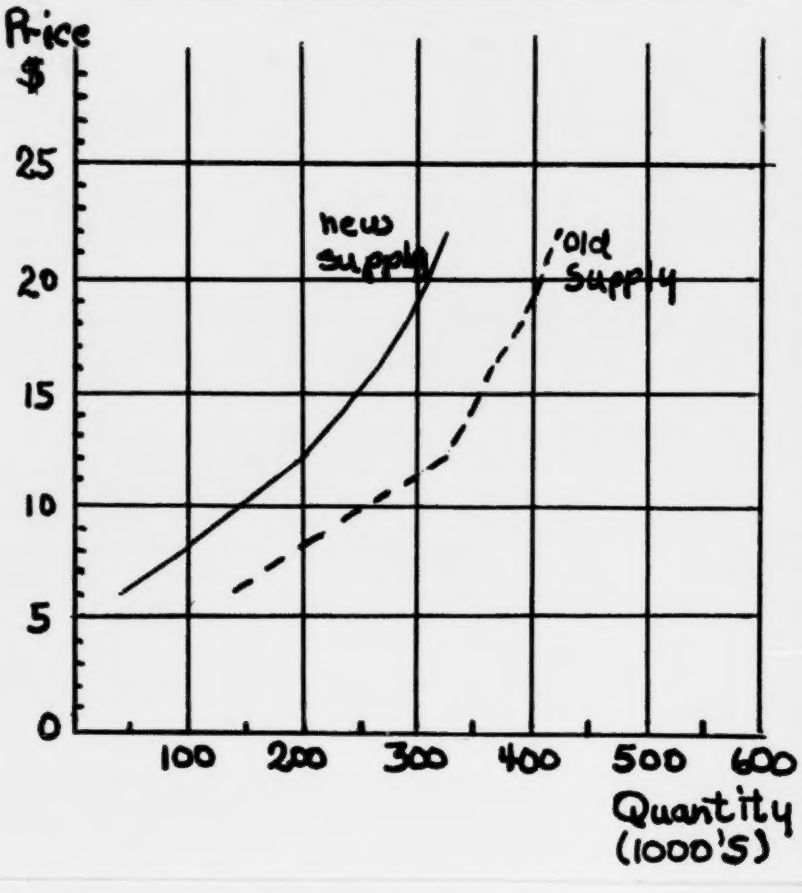
Table VI

Market Supply of Skateboards after a wage increase in industry

Price	Quantity Supplied Skateboards per day
$ 6.00	45,000
8.00	100,000
10.00	150,000
12.00	200,000
14.00	237,000
16.00	266,000
18.00	290,000
20.00	310,000
22.00	325,000

Figure 7

Decline in Market Supply of Skateboards



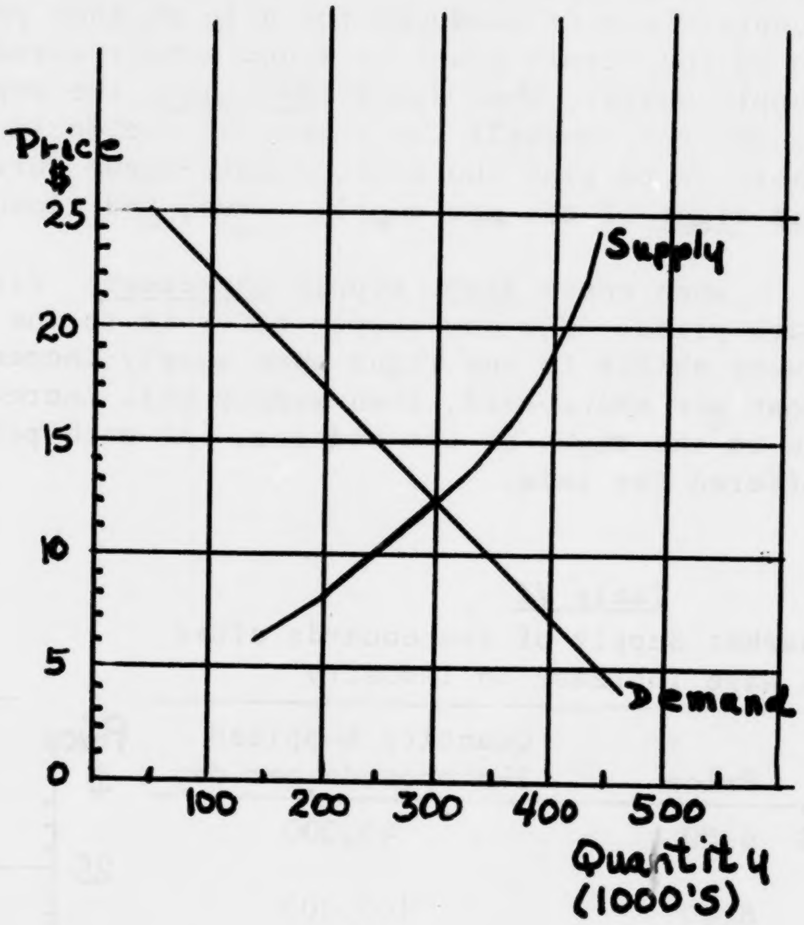
VII. PRICE DETERMINATION: THE PREFECTLY COMPETITIVE MARKET CASE

Market Skateboard Demand and Supply

Table VII and Figure 8 combine information on market demand and supply of skateboards in August, 1965. We are using the original market supply (before the wage rise), the data originally shown in Table IV. (We got the market demand information the same way we got the supply information: We made it up) Market demand and market supply curves are shown in the same graph in Figure 8. The two curves can be plotted on the same diagram because they are both graphs which show a relationship between the same two things, price of a product and quantity. Assuming that both supply and demand conditions are given and won't change, Figure 8 summarizes the market conditions in the skateboard market in August, 1965. The diagram is a model of the market which enables us to predict market price and quantity sold.

Table VII
Market Demand and Supply
U.S. Skateboard Industry,
August, 1965

Price	Quantity Demanded (boards per day)	Quantity Supplied (boards per day)
$ 6.00	420,000	145,000
8.00	380,000	200,000
10.00	340,000	250,000
12.00	300,000	300,000
14.00	260,000	337,000
16.00	220,000	366,000
18.00	180,000	390,000
20.00	140,000	410,000
22.00	100,000	425,000
24.00	60,000	435,000



Price Determination

There are 500 skateboard manufacturers, and probably 1000's of buyers from sport stores who buy skateboards from the manufacturers. This means that there is a great deal ot competition between buyers and sellers. Not one person or business can determine price. In fact, no one person or business can influence price; there is nothing which any one manufacturer can do to affect price. Because one firm supplies such a small per cent (1/500) of the market, each firm must accept the price established in the market and sell its output at that price. Under these competitive conditions, if a firm offered its output at a price higher than the market price, it would not be able to find any buyers, because buyers can buy the skateboards cheaper from some other producer. The manufacturer can sell at a price lower than the market price if he wishes, but that would be foolish because he can sell all he can produce at the higher price.

How, then, is the market price arrived at, if no one sets it? In a perfectly competitive market, price is determined through a process of competitive bidding of buyers and sellers, in which both buyers and sellers try to further their own individual best interests.

Buyers want to buy at the lowest possible price, and sellers want to sell at the highest possible price.

Figure 8 can be used to predict the final outcome of this competition: that the price will reach $12.00 and will stay there. Let's see why. Assume the price is $16.00. Explain why this price cannot be maintained. At that price the demand curve tells us that the total amount of skateboards demanded is 220,000. Manufacturers are willing to sell more. The sellers can't find buyers at this price. There is excess supply. The result is that sellers will reduce the price to increase the amount they sell. When the price falls to, say, $14.00, there is still an excess supply because there are still more skateboards offered for sale at $14.00 than there are buyers offering to buy. The excess of quantity supplied over that demanded is declining, but there is an excess. Sellers will bid the price down further, and as they do, the disparity declines between amount offered and amount buyers are willing to buy. Finally, when the price reaches $10.00, quantity demanded and quantity supplied are both 300,000 per day. Every buyer can find a seller and vice-versa. There is no reason for anyone to offer to buy or sell at a different price because there is a source of supply for every buyer. The market price will stay at $12.00, and 300,000 skateboards will be sold each day.

The same sort of reasoning can be used to show or prove that if the price starts below $12.00, competitive bidding by buyers will force the price up to $12.00. If the price is less than $12.00, quantity demanded exceeds quantity supplied, and the price will be bid up; if price is higher than $12.00, quantity supplied is greater than quantity demanded, and the price will be bid down to $12.00. Under existing market supply and demand conditions, the price will be $12.00, because this is the only price where demand equals supply.

VIII. PRICE CHANGES AND THE LAWS OF SUPPLY AND DEMAND

The above analysis illustrated how price and quantity sold are set by particular demand supply conditions in a market. It also gives the clue to the reason for changes in price. Price and amount sold change whenever demand or supply conditions change. The laws of supply and demand are laws which predict the direction of the change in price and quantity sold, when demand or supply changes.

The Effect on Price and Quantity Sold of a Change in Supply Conditions

In the skateboard example, what effect would the rise in wages shown in Figure 7 have on market price and quantity sold? To find out, plot this curve (use the data in Table VI to plot it) onto Figure 8.

What does this tell you? Now you have three curves on the same diagram, but only two describe market conditions. The first supply curve (the original one) is no longer relevant, so mark it out with your pencil. Under the new market conditions what is the price? How many skateboards will be sold per day after the market settles down (adjusts to the new supply conditions)?

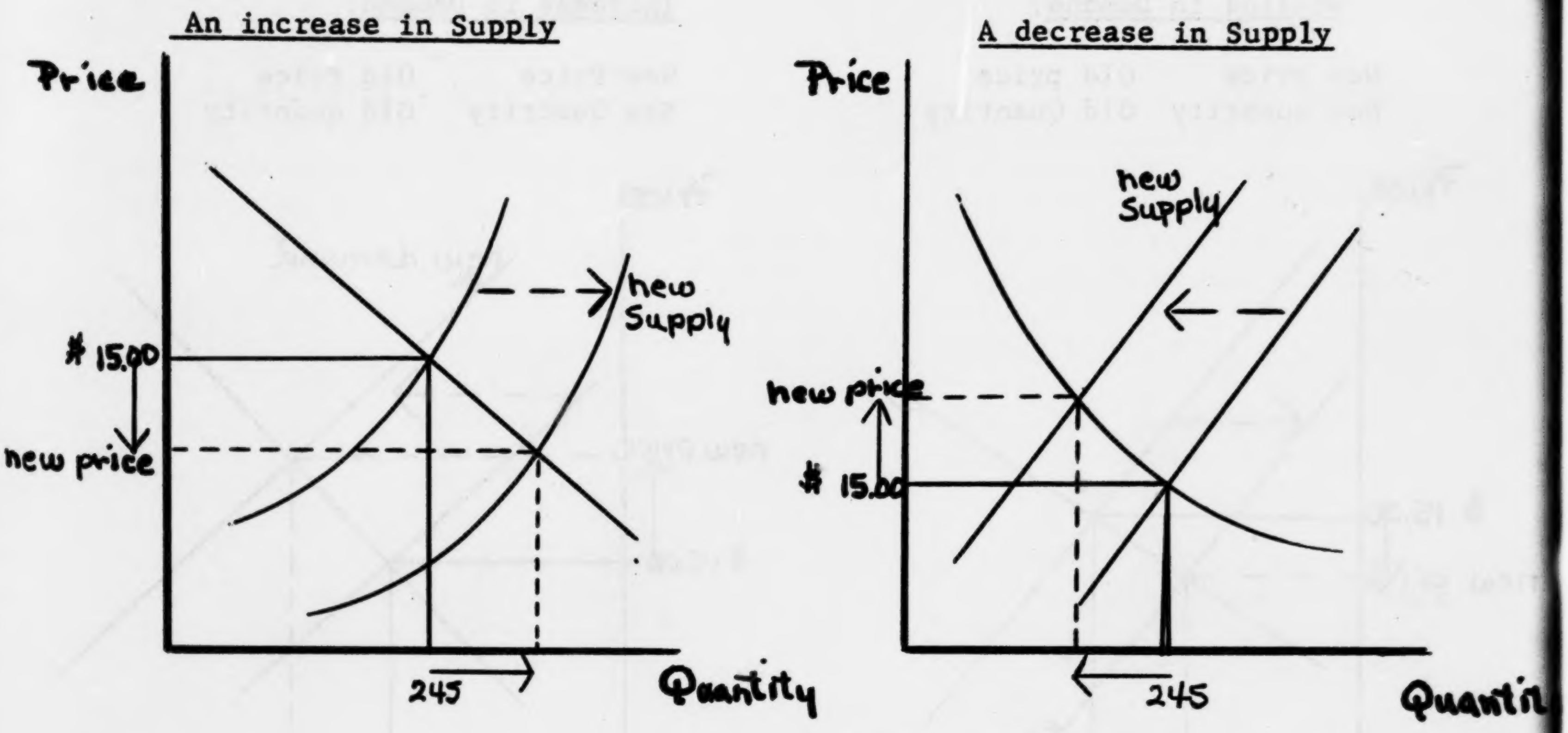
Your answer should be that the new price is a little less than $15.00, and about 245,000 skateboards will be sold per day. Under the new supply conditions, the old price is too low. At $12.00, manufacturers are now only willing to sell 145,000 skateboards a day, but buyers still want to buy 300,000 a day. Unsatisfied buyers will be willing to pay more to get skateboards. As they bid up the price, buyers buy fewer skateboards, and sellers are willing to sell more; the gap between quantity supplied and demanded closes as the price gets closer to $15.00. All excess demand is eliminated when the price reaches $15.00, and the price will remain there until market conditions change again.

This reaction of market price and quantity to a change in supply conditions can be stated as a general rule, and this rule is the first half of the law of supply and demand. The rule is this:

1. In any market with given demand conditions:
    - a. if supply decreases, the price will increase, and the quantity sold will decline;
    - b. if supply increases, the price will fall, but the quantity sold will increase.

This reaction is shown in the two diagrams in Figure 9. The diagram on the left shows the market reaction to an increase in supply; the diagram on the right shows the reaction to a decline in supply.

Note that the rule about the market reaction to a change in supply is prefaced by the condition that demand conditions are given. This means that the rule applies only when the demand curve stays put, when demand conditions stay the same. We will discuss below what happens when both supply and demand conditions change.



An increase in Supply

A decrease in Supply

Figure 9

The Effect on Price and Quantity of A Change in Supply

The Effect on Price and Quantity Sold of a Change in Demand

What happens if demand conditions change? Assume that the skateboard fad starts ebbing? There is a decline in demand, and this means that the number of skateboards people will buy at $15.00 is less than 245,000 a day. What effect will this decline in demand have on the price and number of skateboards sold?

To find out, use the diagram provided on the left side of Figure 10. This diagram shows market conditions in the skateboard market when the market price is $15.00, and the number sold are 245,000 a day. Draw a new demand curve which shows a decline in demand, and figure out whether price increases or decreases, whether quantity sold increases or decreases. Indicate your answer by putting the correct inequality sign to describe the relation between the new and old price and the new and old quantity.

($<$ means less than; $>$ means greater than)

Decline in Demand:

New price Old price
New quantity Old Quantity

Increase in Demand:

New Price Old Price
New Quantity Old quantity

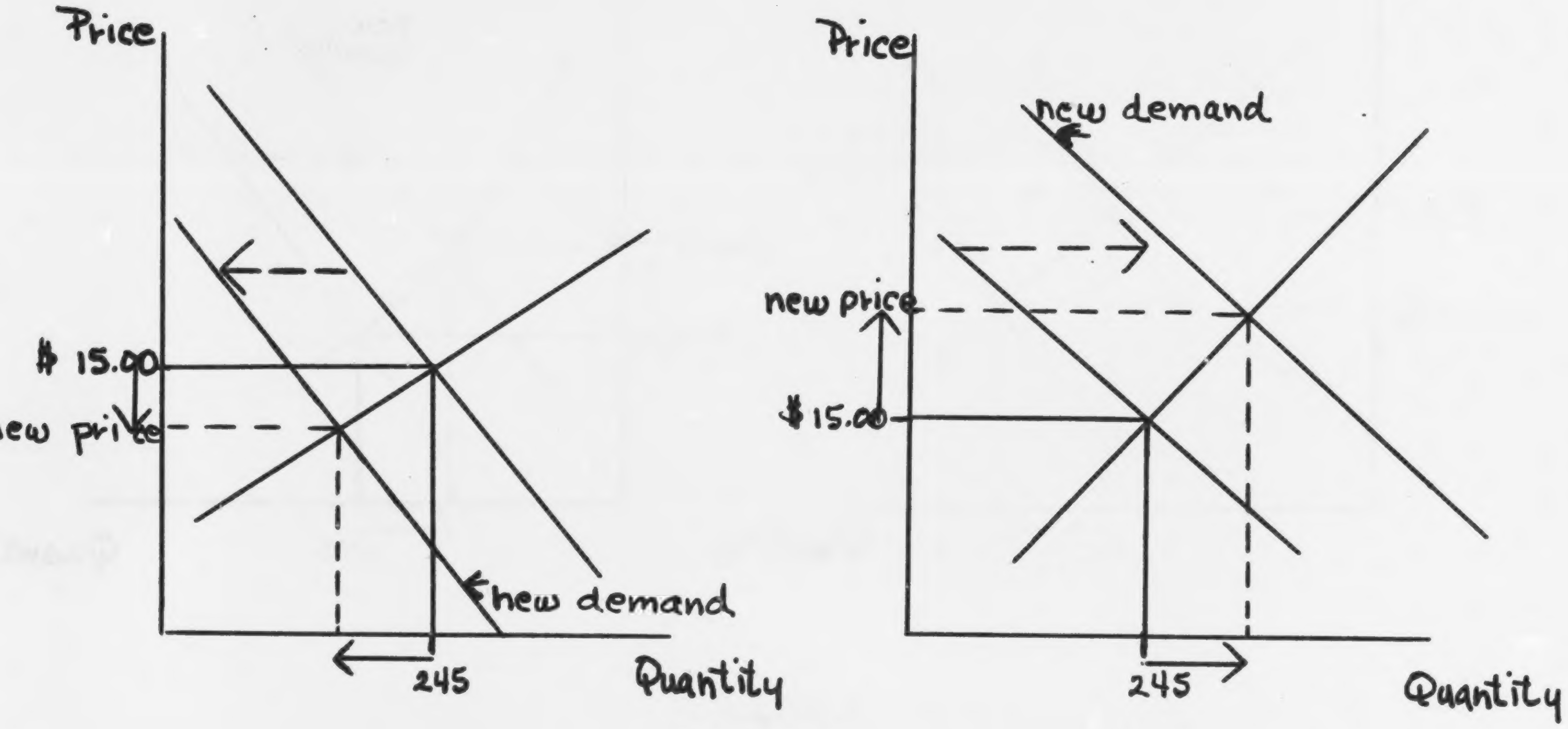


Figure 10
The Effect on Price and Quantity of a Change in Demand

(Your new demand curve should be to the left of the original demand curve; the new price is less than the old price, and the new quantity is less than the original number of skateboards sold. The amount of the changes, of course, depends on how much you moved the demand curve. The new demand curve is to the left of the old one because buyers are not as eager for skateboards as they had been. In order to get buyers to buy 245,000 skateboards a day, the price will have to drop. At $15.00, buyers will no longer buy as many as 245,000 skateboards a day. Therefore, at $15.00, the previous market price, there is an excess supply, and sellers will reduce the price to increase sales.)

Using the diagram on the right side of Figure 10, draw a new demand curve which shows an increase in demand, and decide what effect this has on price and quantity sold. Fill in the inequality signs for this case in the space provided.

(Your curve should be to the right of the old demand curve, and the effect is that the new price and quantity sold will both be greater than at the old.)

The second part of the law of supply and demand summarizes the effect of a change in demand on market price and quantity sold. The rule is:

2. In any market with given supply conditions:

a. if demand increases, the price and quantity sold will increase;

b. if demand decreases, the price and quantity sold will decrease.

Again, these predictions are true, only if we assume that the supply side of the market remains unchanged--the supply curve does not shift.

The Effect on Price and Quantity Sold of A Change in Both Demand and Supply

The reason that we changed only one side of the market at a time in the above examples is that it is not always possible to predict the direction of price and quantity changes when supply and demand change at the same time. An example will illustrate this.

In the right-hand diagram in Figure 10, draw a fourth curve, showing an increase in supply. (This curve should be to the right of the original supply curve.) Now, compare the original price and quantity (of $15.00 and 245,000 skateboards) with the new market price, after both demand and supply have increased. This is the price and quantity where the two new lines cross. Certainly the quantity sold has increased, but price may increase or decrease, depending on how much you shifted the two curves. You can't predict with 100% accuracy what will happen to price after an increase in both demand and supply. This is because an increase in demand forces price to rise, and an increase in supply forces price to drop. The two changes may or may not offset each other, but you have no way of knowing unless you know how much the two curves shift.

This same thing is true whenever both curves shift; it is not possible to predict the direction of change in both price and quantity.

IX. RESOURCE ALLOCATION UNDER CONDITIONS OF PERFECT COMPETITION

Now that the process of price determination has been described, it is very simple to show how the market or "price"system allocates resources.

The Decisions About "What" to Produce

Assuming we've exhausted everyone's patience with the skateboard business, let's use another example. To illustrate the analysis, we will take an industry which actually operates very close to perfect competition--textile production of "gray goods." Gray goods is the name given to unbleached cotton cloth, the basic cloth used to make many different kinds of finished cloth and sheeting. Assume that the demand for cloth increases for some reason; maybe cotton dresses become fashionable in the winter. From the analysis in the previous section, the price and quantity sold of cotton will increase. When price increases and the cotton manufacturers increase their production, the effect will be that profits increase in this industry. This industry will become more profitable than other, related industries. This, of course, pleases the firms in the industry, but the higher profits will also attract new firms. New businesses start producing "gray cloth." The effect of new firms coming into the industry is that more will be offered for sale at the current price; market supply increases. When market supply increases, the price drops and the amount sold will increase. As the price drops, profits drop. When price declines and profits drop back to normal, new firms will stop going into the production of "gray cloth" and the price will stabilize. Price and the number of firms will estabilizd when profits are back to normal.

To summarize, the effect of the increase in demand is: (1) in the short-run, price increased; (2) the price increase attracted new producers, so that the longer-run effect, after the market reacts completely to the increase in demand, is that the price dropped back down to what it had been before the increase in demand, and the main result is that there are more manufacturers of gray cloth. We can conclude from this that under these highly competitive conditions, producers' search for profits will insure that additional resources will be allocated to the textile industry. The system responds automatically to allocate resources to conform to consumer demand. When consumer demands change, the system responds automatically to insure the reallocation of resources in the direction desired by consumers. The consumer is the boss; he is king, and textbooks often refer to this characteristic as the existence of complete consumer sovereignty.

The Decisions About How to Produce this Output

How do firms decide how to organize production in a highly competitive market (many producers of essentially the same product, where it is easy for new firms to start into business in competition with old firms)? In this sort of market, it is essential for survival that a firm use the most efficient methods of production. If a firm is inefficient, then the cost per unit of output would be higher than costs of competitors. Since competition forces profits down to a minimum ~~to keep firms in business;~~ the inefficient firms could not earn any profits and they would go bankrupt. For example, if the average cost of producing cotton cloth is $2.40 per bolt for most firms, and the market price is somewhere around $2.65 per bolt, inefficient firms producing cloth at a cost of around $2.65 or more, could not remain in business.

This means that firms operating in a highly competitive market must always try to produce at the lowest possible price. They use the most reasonably priced resources; they use the most recent production methods; and they have an incentive to figure out new and cheaper production methods. If they do succeed in inventing new methods they can be sure of only temporary extra profits for their effort. The fact that there is so much competition means that it is easy for firms to copy new inventions. The only way to assure extra profits, over what your competitors,earn is to innovate continually, to always be one step ahead of the pack.

Decisions about the Distribution of Output, the "for whom" Decisions

In a competitive market economy, consumers are free to buy whatever they choose; they are sovereign. However, distribution of output also is dependent on how much each individual has to spend. People with higher incomes get a greater proportion of what is produced; they have a greater effect on the demand side of the markets. It is their demands that are satisfied by the operation of markets. An important question, therefore, is how the distribution of income is determined in a competitive, market economy.

In a market economy, a person's income comes from selling or allowing others to use scarce resources owned by the person. The major source of income is from selling one's labor resources, but people also earn income from lending property to others so that it can be used in production. Thus, a person's income is dependent on the price of the resources he owns. The price of factors of production depends on the market supply and demand for that resource. If a person owns resources which are in great demand, he can earn a good income from making the resource available to others. There is only one Willy Mays. There is only one Mark Hopkins Hotel in San Francisco. There are millions of typists and almost anyone who can type 60 words per minute and works hard can fill a clerk-typist job. The law of supply and demand applies in determing the price of factors of production as well as the prices of final output. One's income depends on one's control over productive resources. If the demand increases for a certain kind of engineer, the salaries of these engineers will rise, and the number of them at work will increase. If the engineer market is a competitive market--it's easy to become an engineer-- new people will offer their services as engineers. Supply will increase and salaries will drop.

X. RESOURCE ALLOCATION IN A MONOPOLY MARKET

All of the analysis in this section depends on a few important assumptions: (1) people and businesses are free to do as they please, that is to enter and leave any business or work; (2) people will act to maximize their own income; (3) they are able to do what they want because it is very easy to switch jobs and for businesses to switch from one kind of production to another; (4) there are a great many buyers and sellers in each market; (5) there is some fixed amount of factors of production. Under these conditions, price changes reflect any change in supply or demand conditions, and the price changes set off an automatic reallocation of resources in the desired direction.

The assumptions of a great deal of competition and freedom of action are essential. Otherwise, abnormally high prices might persist indefinitely, because the one side of the market does not respond to the increase in price. For example, if the demand for carpenters rises because of an increase in demand for new houses, we assume that the higher wage rate will bring more workers who will help to increase the amount produced, which in turn will force house prices and the wage rate back to normal. However, if carpenters are organized into a union which controls the existing supply of carpenters, and will not allow wage rates to drop, the wage rate may remain high indefinitely after an increase in wages. Otherwise, the union refuses to supply carpenters.

Of course, businesses hiring workers will react by trying to substitute machinery for carpenters. This may xxx relieve the demand for carpenters. Nevertheless, the wages of the workers in that union will remain high permanently; but the businesses will hire fewer of them.

There are many examples of attempts to restrict competition in this way in the real world. To the extent that business monopolies, unions and government policies exist to restrict competition, the market does not allocate resources completely to conform to consumer wishes. One of the fascinating parts of economics is the investigation of the effects of business monopolies, labor unions, and government action on prices and resource allocation. This will be the object of study in lessons 6 through 9.

ECON 12
UNIT II
WORKSHEET FOR LESSONS 3-6

PART I DEFINING A MARKET

1. Give the economist's definition of a market. Explain the difference between this definition and the usual meaning of the word.

2. For the following market situations, try to figure out whether the market is a local, regional or national market. In column 3 give your reasons for your decision about the geographic extent of the market.

Column 1 The Market	Column 2 Geographic Limit	Column 3 Reasons for your Decision
1. Cigarette sales by the manufacturers	1. national	1. only 3 major producers in the U.S.; easily transported.
2. purchase of major league baseball players		
3. retail car sales		
4. sale of services at beauty shops		
5. sales of cement by manufacturers		
6. sale of California redwood lumber by lumber mills		
7. jet plane sales by manufacturers		

PART II ARITHMETIC LINE GRAPHS

1. **Purpose:** The purpose of this section of the Worksheet is to teach you how to use arithmetic line graphs. You will learn five things:
(1) What line graphs are and why they are useful;
(2) How to construct one;
(3) How to read a line graph and describe its characteristics;
(4) How to compare two graphs;
(5) When it is permissible to compare two graphs.

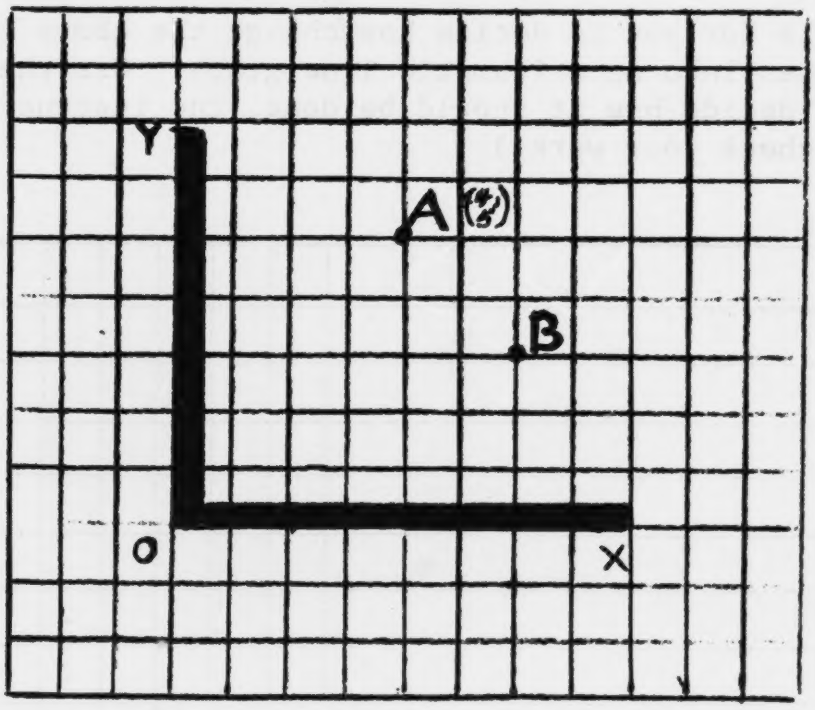
2. **Line graph defined:** What is a line graph? An arithmetic line graph shows the quantitative relation between two variables.

In other words, it can tell you the quantity for each of two related things, such as the price of cans of frozen orange juice in relation to the number of cans sold. It can also show the value of one thing if you know the value of the other: when the price of a can of orange juice is 16 cents, people will buy 90,000 cans in a month.

In the graph below, the heavy lines are called axes. The axes are always at right angles to each other. The point where they intersect is called the vertex, or origin.

The two axes and the vertex form a coordinate system. You can use this coordinate system to describe any point on the plane made up by this piece of paper. If you draw an arithmetic scale on each axis, you can describe any point in the plain by finding its distance vertically and horizontally from the origin.

In the graph below, point A is described by its two coordinates (5,4). This says A is 4 units side-ways from 0 and 5 units straight up from 0. What are the coordinates for point B?



3. **Problem 1**. A market analysis shows that in the month of April, in San Francisco, the sale of cans of frozen orange juice will vary in quantity according to the price charged. If the price is 16 cents a can, then 90 thousand units (cans) will be sold. For every increase in price of two cents per can, the quantity sold will drop by 10 thousand units. At 34 cents per can, no one will buy the product.

(The instructor will show you how to put this information into a table first, and then in an arithmetic line graph. As it is explained to you, copy the table and the graph in the spaces below.)

ost per can	quantity sold (in 1,000's)

4. **Problem 2**. Now it's your turn. The same analysis shows figures for the sale of milk during the same period. If the price for fresh milk is 16 cents per quart, 85 thousand quarts will be sold during the month. For every increase in price of 2 cents per quart, the quantity sold will drop by 5 thousand quarts.

(The problem is for you to decide how to change the above information first into a table and then into an arithmetic line graph. Use the space below for your work. As you decide how it should be done, the instructor will draw it so that you may check your work.)

5. How to describe the characteristics of a line graph. There are three things you should be able to describe about the characteristics of a line graph. They are:

a. the Variables (whose relation to each other the graph visualizes)

b. the Intercepts If the line graph bumps into either axis, the point where it "intersects" the axis is called an intercept. (If the line intersects the Y axis, the intercept is called the Y intercept; if it intercepts the X axis, it is called the X intercept.)

c. Shape of the line (in geometry, lines are usually called "curves" whether they are curved or straight) The shape of the line is described by its slope. It is the ratio of the change in the variable measured on the Y axis to a given change in the variable measured on the X axis.

There are three important things about the slope/(shape) of a line:

1. its Sign (+ or -) When Y increases, does X increase or decrease? If both increase together, the sign is + . When X increases and Y decreases, the sign is - .

2. Value of the Slope. (steep or shallow) This describes how much Y changes for a given change in X. If Y changes a great deal for a small change in X, the slope is steep.

3. Change in Slope. Does the slope change at different parts of the curve? It does if the line is curved rather than straight.

6. Description of the line graph in Problem 1.

a. Variables: price of orange juice (Y axis); quantity orange juice demanded (measured on X axis).

b. Intercepts: There is a Y intercept at p=34¢ and at 8=0.

c. Shape of the "curve":

1. sign of slope: Minus. (Price and quantity demanded are negatively related.)

2. value of slope: Slope = $\frac{2¢}{10{,}000}$ (For every increase in price of 2c, quantity sold drops 10,000 cans.

3. Change in slope: The slope is constant. It doesn't change.

7. **Compare the line graphs in Problems 1 and 2. Describe their characteristics below:**

a. variables

b. shape of the "curves"

1. sign

2. value of slopes

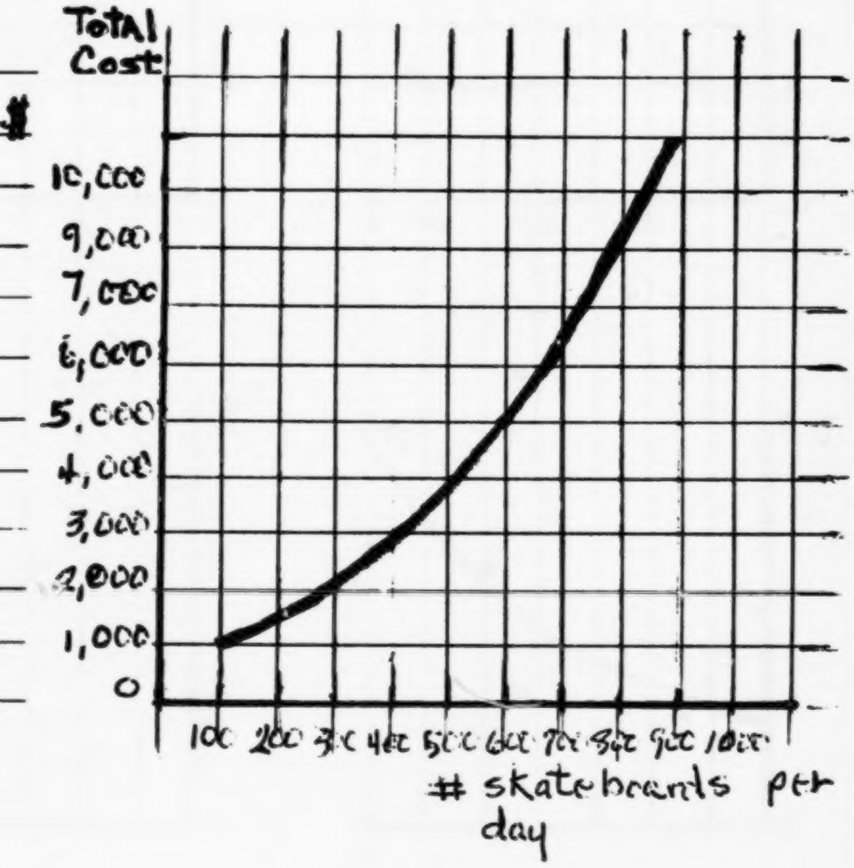
3. change in slopes

c. intercepts

d. summary

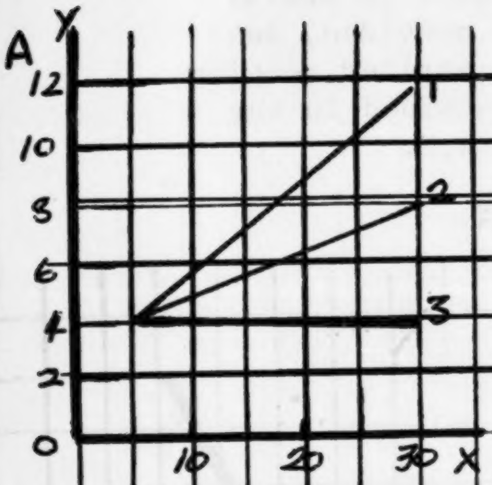
8. **Problem 3**. The curve to the right describes the relation between the total cost of producing skateboards and the number of boards produced per day. Describe the curve in the space provided, describing the three characteristics mentioned in the earlier section of the Worksheet. Then convert the information contained in the line graph into a table in the space next to the graph.

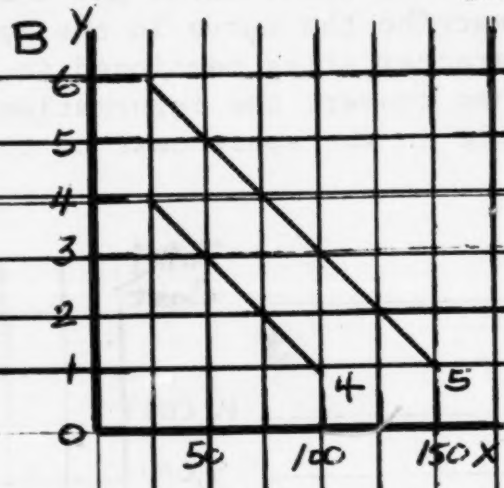
Total Cost per day	Total Output per day	

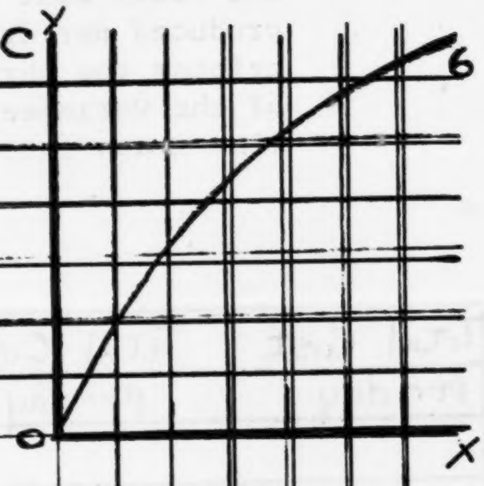


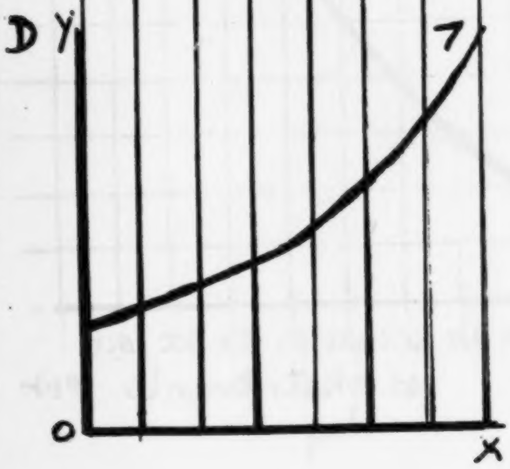
Description of the total cost curve for Ace Skateboards, Unlimited:

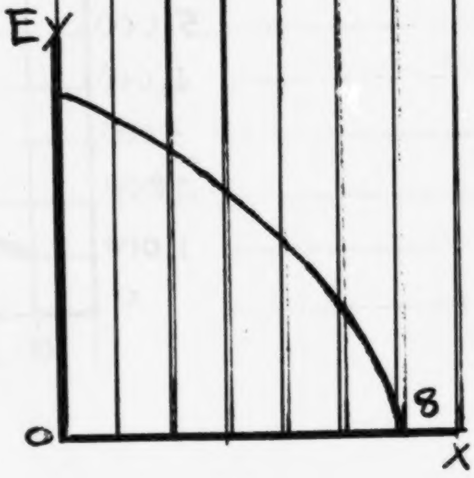
9. **QUIZ:** In the following questions, fill in the blanks to complete the sentence, showing calculations where necessary, and circle the correct word in those cases where you are given a choice.

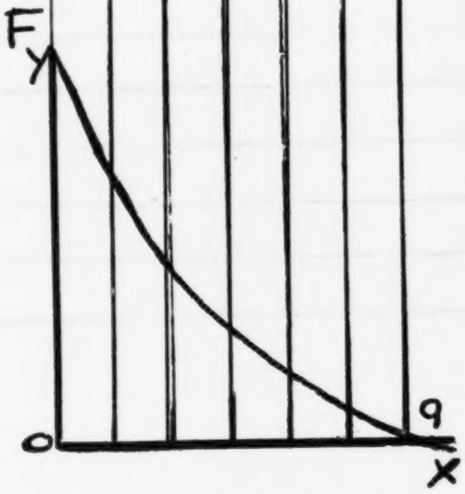












1. Curves 1 and 2 in graph A show that as X increases, Y ____________________, that is, they show a (positive) (negative) relation between X and Y. Another way of saying the same thing is to say that the slope of the curves is n____________________.

2. Curve 3 in graph A shows that for any value of X, Y equals____________. Describe in words the relation between X and Y which is shown in Curve 3:

Quiz continued.

3. In graph A, give the values for Y as indicated below:

when X = 20, Y = ____________for line 1

when X = 20, Y = ____________for line 2

when X = 20, Y = ____________for line 3

when X = 10, Y = ____________for line 1

when X = 10, Y = ____________for line 2

when X = 10, Y = ____________for line 3

4. Determine the slope of each of the three lines in graph A using the formula: slope of curve = $\frac{\text{change in Y}}{\text{change in X}}$

slope of curve 1 = ____________________________

slope of curve 2 = ____________________________

slope of curve 3 = ____________________________

5. In graph A, curve __________has the steepest slope. For a change in X at 10, Y changes the most in curve_________________and least in curve__________________. The slope of a curve tells how much one variable (the one measured on the vertical axis) changes when the other changes by a certain amount. The steeper the slope, the more responsive Y is to change in X. In the examples above, Y is most responsive to change in X in curve__________.

6. In graph B, the two curves show a (positive) (negative) relation between X and Y. If Y = 3, X = _________for line 4, X = _________ for line 5. The fact that curve 5 is farther to the right in graph B means that for any value of Y, X on line 5 is (greater than) (less than) the corresponding value of X on line 4. For any value of Y, X is (smaller) (greater) on line 5 than on line 4. The fact that lines 4 and 5 are parallel to each other means that they both have the same _________.

7. Compute the slope of line 4 and line 5: slope of line 4 = ____________; slope of line 5 = __________.

8. Lines (6) (7) (8) (9) show a negative slope. Lines (6) (7) (8) (9) show a positive slope. Lines (6) (7) (8) (9) show that X increases when Y increases. Lines (6) (7) (8) (9) show that Y increases when X decreases. Line __________shows a decline in the amount Y increases for a given change in X.

9. Which of the lines show a tendency for the slope to get smaller as the value of X increases?____________________________________
What does this mean?____

10. Which of the lines show a tendency for the slope to get steeper as the value of X increases? ____________________________________
What does this mean?____

PART III. SUMMARY INFORMATION ABOUT MARKET DEMAND AND SUPPLY

1. Market demand for a product is defined as the ________________________ ________________ by ______________________ the buyers in the market, assuming demand conditions are ____________________________________.

2. List the major demand conditions:

3. Most demand curves have a negative slope; people buy more of the product at lower prices. Explain why this is true for most products.

4. Market supply for a product is defined as

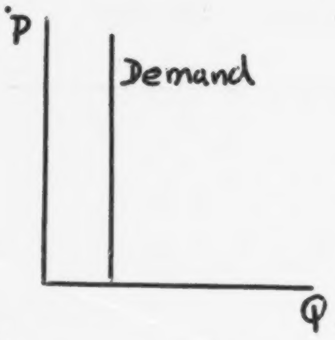
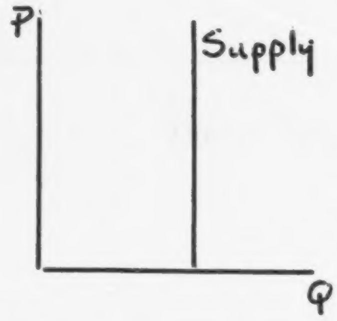
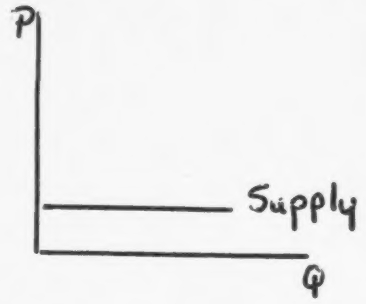
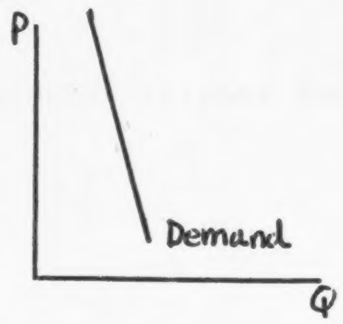
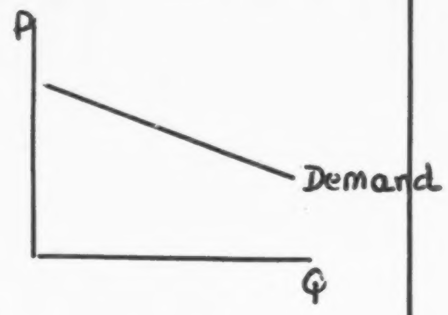
5. List the major supply conditions.

6. What is meant by the statement that the demand for butter is elastic?

7. For the following goods and services, state (in column 2) whether or not you think demand is elastic, and give your reasons in column 3.

Column 1 Product	Column 2 Elasticity of Demand	Column 3 Reason
1. bread at 27¢ a loaf, spring 1966 in Calif.	inelastic	bread is a necessity, and the price is not excessive.
2. Mustangs (1966) in California		
3. Jet flight, S.F. to Europe, Spring 1966		
4. rubber bands at the usual price, 1966, in California		
5. T-bone steaks this week in San Francisco		
6. Gas at the corner Shell station in your neighborhood		
7. cigarettes at usual prices, spring, 1966 in California		
8. cigarettes at $3.00 per pack, Spring, 1966, in Calif.		
9. gas at a station in the Mojave Desert (nearest station is 100 miles)		

8. For the demand and supply curves shown in column 1, describe the main geometric characteristics in column 2. In column 3, give a plausible example of a product for which the demand or supply curve might have that shape. Explain.

Column 1	Column 2	Column 3
a. 	quantity is fixed. Price doesn't affect demand.	Insulin--a certain number of people must use a certain amount per day, regardless of price.
b. 		
c. 		
d. 		
e. 		

PART IV MARKET PRICE DETERMINATION

1. The following table shows the demand for and supply of gidgits for a particular week. The market is purely competitive.

price/ gidgit	Market demand quantity purchased per week	Market supply quantity sold per week	Increase in Market Demand
1.00	5000	3000	
2.00	4500	3500	
3.00	4000	4000	
4.00	3500	4400	
5.00	3000	4700	
6.00	2500	4900	
7.00	2000	5000	

a. What will be the market price and quantity sold per week?
Price ________________

Quantity sold?________________________

b. Prove this by describing what would happen in the market if the price were $1.00, if the price were $7.00.

c. Why does quantity supplied increase by smaller and smaller amounts as price increases by $1.00?

2. a. In problem No. 1 (on page 35), in the fourth column, fill in numbers which show an increase in demand.

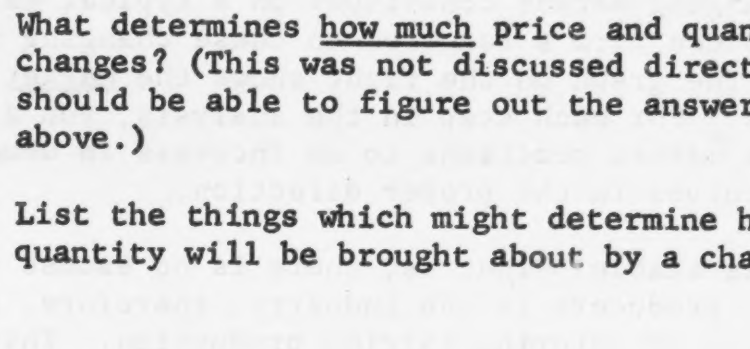
   b. Give three possible reasons why demand might increase.

   c. State the part of the law of supply and demand which predicts the effect of an increase in demand on the market price and quantity sold.

3. The law of supply and demand allows us to predict whether price and quantity increase or decrease when market conditions change. For instance, if supply increases, demand remains the same, price will

   ____________________, and quantity will ____________________.

   This is shown in the diagram below.



   What determines how much price and quantity will change when supply changes? (This was not discussed directly in the reading, but you should be able to figure out the answer by studying the diagram given above.)

   List the things which might determine how big a change in price and quantity will be brought about by a change in supply.

PART IV

LONG-RUN EFFECTS OF COMPETITION ON RESOURCE ALLOCATION AND IN PROMOTING THE FOUR BASIC ECONOMIC GOALS

1. The reaction of a competitive market to a change in consumer references, or in the teaching of production.

Two advantages of a highly competitive market system are that free competition between producers assures that scarce resources will be used to produce the output consumers want most, at the lowest possible cost.

This exercise is included to give you practice using demand and supply curve analysis. You will use the curves to prove that the response to an increase in demand is an increase in output (at no long-run increase in price) in a perfectly competitive market model.

Trace the market reactions to an increase in demand for earrings for pierced ears, assuming this market is perfectly competitive.

a. What market conditions would have to exist in the industry to make it perfectly competitive with respect to the following?

1. the nature of the product:

2. the number of suppliers:

3. the relative size of each supplier:

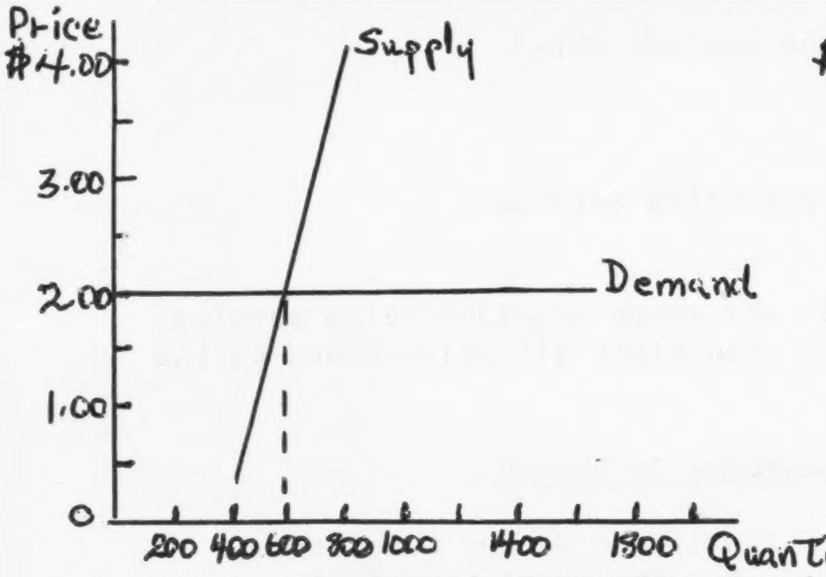
4. the ability of new firms to start producing earrings:

b. In the diagrams which follow, the graph on the left describes the effect of changing market conditions on a typical earring manufacturer, and the firm's reaction to these changing market conditions. The graph on the right shows the market supply and demand curves. For each step in the analysis, you are to trace through the market reactions to an increase in demand by shifting the curves in the proper direction.

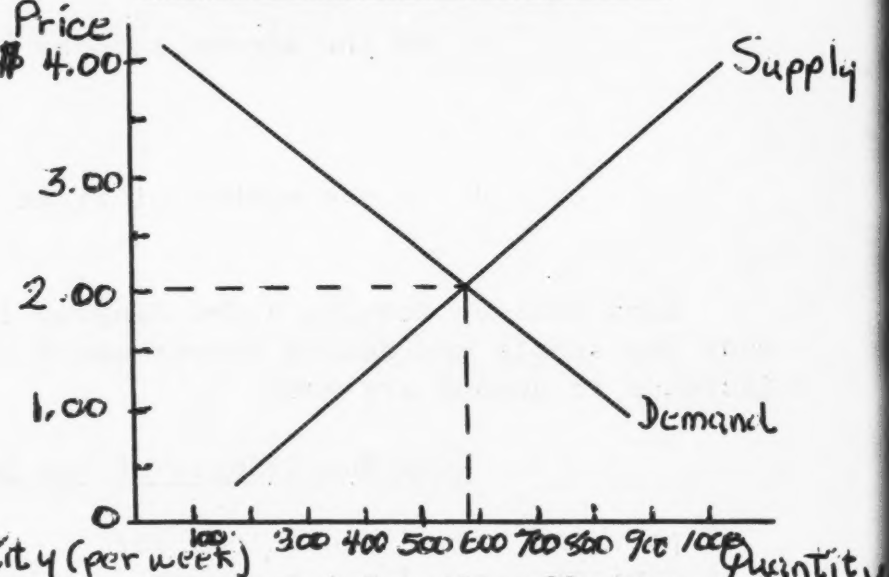
1. The market is stable. That is, there is no excess profit being earned by producers in the industry; therefore, there is no one leaving or entering earring production. This condition is shown in the two diagrams below, the one on the left

shows the demand and supply curves for a typical firm in the earring market and the diagram on the right shows demand and supply conditions for the entire market. The fact that the firm's demand curve is a horizontal line drawn at the market price of $2.00 per pair of earrings, means that the firm must accept the market price and sell at that price. The firm has no control over price.

Supply and Demand Conditions for a typical Earring Manufacturer



Supply and Demand Conditions for the Earring Market



2. Demand increases. In the diagrams above, show the effect on both the market and on the firm by drawing new demand curves and state the effect on price and quantity sold.

a. The new market price is

b. The new total quantity sold by the entire market is

c. The new quantity sold by the typical firm is

d. The new price of the firm is

3. What happens next? Describe in writing and draw the new curves in the diagram above; this time use broken lines to distinguish these new lines from the ones you added in 2 above.

4. What will be the long-run effect of the increased demand, after the market has adjusted completely to the increase in demand?

   a. on price?

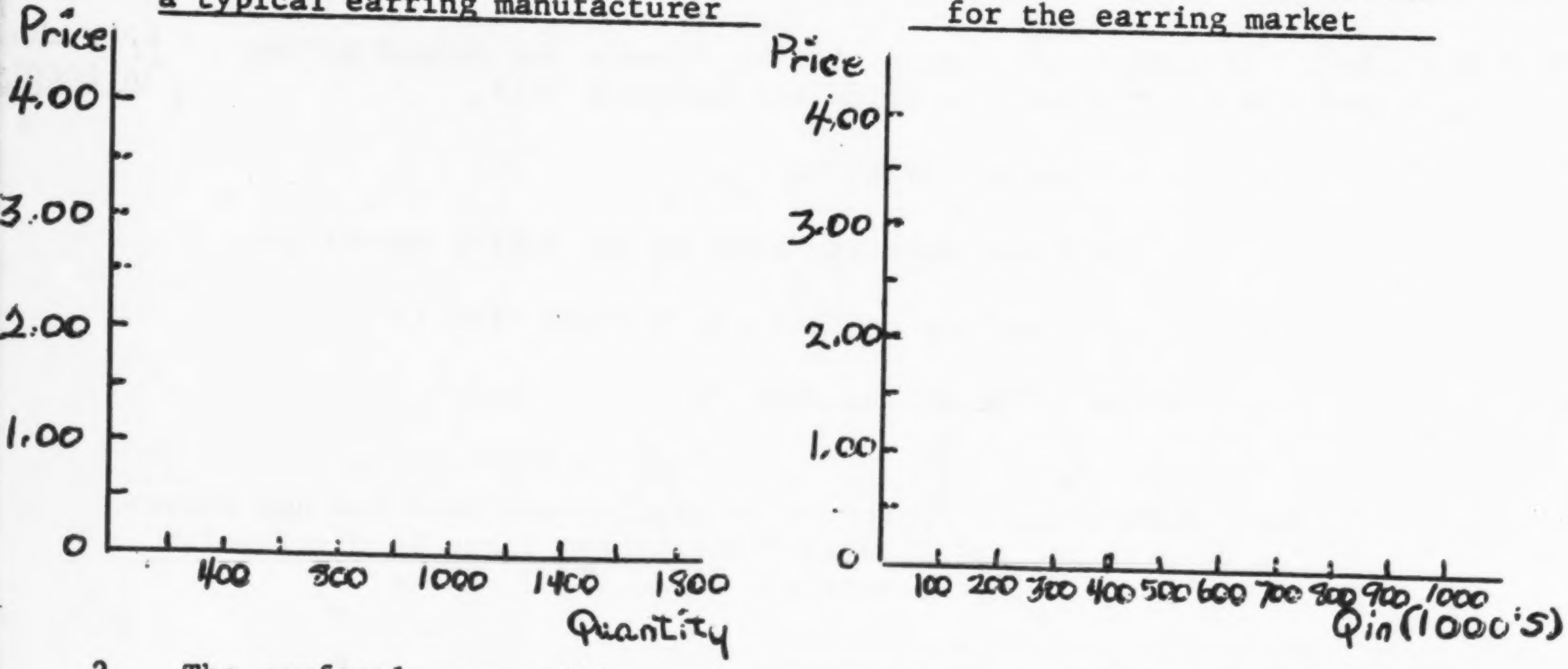
   b. on the amount sold in the market?

   c. on the amount sold by the typical firm?

   d. on the number of firms producing earrings?

Show this by drawing a new diagram in the space provided below showing what the supply and demand curves would be like after all adjustments to the increase in demand are made.

Long-Run Effects of the Increase in Demand



Supply and Demand Conditions for a typical earring manufacturer

Supply and Demand Conditions for the earring market

2. The perfectly competitive price system has many advantages which have attracted economists since the time Adam Smith wrote about the invisible hand of the market:

   1. It provides for decentralized decision making. There is no need or cause for the government or some other authority to decide how to allocate scarce resources.

   2. It provides an automatic response system (a cybernetic system). Because individuals buy and sell to further their own best interests, and becasue the system is highly competitive, producers and consumers respond immediately to changes in prices.

3. It provides an automatic information system which informs producers of the desires of consumers, and informs buyers of the cost of producing different outputs.

4. The system responds in such a way as to assure consumer sovereignty --consumers decide on how resources are to be allocated--and efficient resource allocation--output is produced at as low a cost as possible.

There are at least three additional interesting questions we should answer before we become staunch promoters of the perfectly competitive world.(a.)How well does the system perform in promoting the four basic goals which were discussed in Lesson 6 of Unit I? Discuss each goal individually:

(1) Economic justice

(2) Economic Freedom

(3) Economic Progress

(4) Economic Stability

b. Is the perfectly competitive market system as advantageous for producers as it is for consumers? Explain.

c. In the perfectly competitive market system how equally would income be distributed? How easy would it be to amass an enormous amount of wealth?

PART V. PERFECT MONOPOLY

1. Assume Lucy, of "Peanuts" fame, is a monopolist in the Frosted Freeze ice cream market. Market demand is given by Table I below (and Figure 1). Lucy's cost of production at different levels of ourput is shown in Table II, and figure 2.

Table I, Market
Demand for Frosted Freezes

price per one	quantity demanded per week
5¢	127
6	123
7	119
8	114
9	109
10	103
11	96
12	91
13	89
14	87
15	84

Table II, Supply Conditions
Lucy's Total Costs

Quantity produced	Total cost
127	$4.80
123	4.70
119	4.57
114	4.42
109	4.27
103	4.09
96	3.38
91	3.23
89	3.17
87	3.11
84	3.02

Figure 1
Lucy's Demand Curve

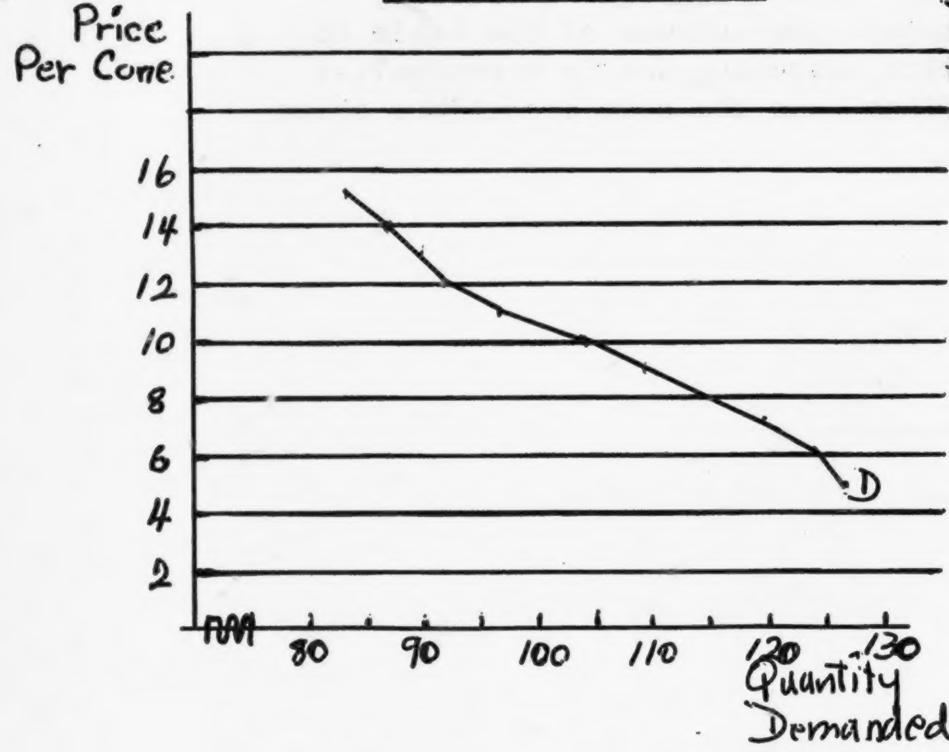
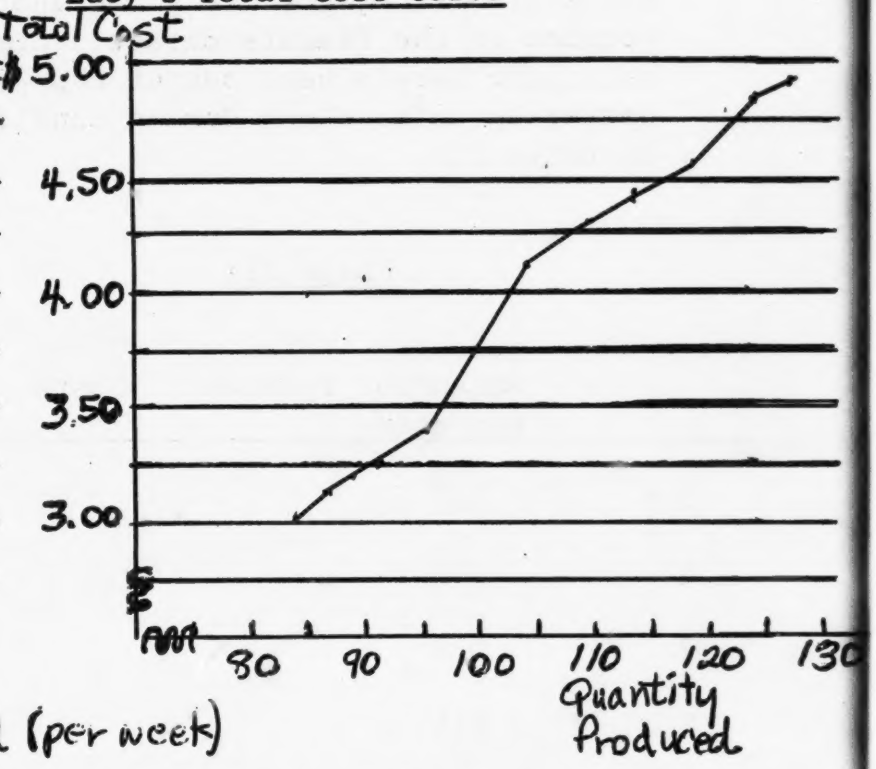


Figure 2
Lucy's Total Cost Curve



Assume that Lucy wants to make the highest possible total profit. What should she do?

a. Can Lucy set the price?

b. What additional information must Lucy take into consideration in deciding what to do (as compared to the options open to a firm in a perfectly competitive market)?

c. Draw Lucy's Supply Curve in Figure 1.

d. Determine market price and quantity sold.

market price ______________________

quantity she sells/week______________

her total profits/week_______________

Describe how price is determined:

Describe how quantity sold is determined:

2. In teh case presented above, Lucy is in a very good position to exploit her monopoly, because of the peculiar nature of the demand for Frosted Freezes. Below, you are given another demand schedule for Frosty Freezes in the Peanuts market. Complete the columns of the table to calculate Lucy's best output and price, assuming she is a monopolist operating under these demand conditions, and the cost conditions shown in Table II.

Table III

price/cone	quantity demanded per week	Total revenue	Total Costs	Total Profit
5 ¢	127			
6	123			
7	119			
8	114			
9	109			
10	103			
11	93			
12	83			
13	72			
14	61			
15	50			

a. Lucy will sell______cones per week at a price of ________per cone, and she will make a total profit equal to _______________.

b. Describe the difference between the two demand schedules. Why does the first demand schedule allow Lucy to make higher profits and charge a higher price?

d. What does this suggest about the ability of a monopolist to exploit his monopoly power? ans. The more ______________________ demand, the greater his ability to ______________________________.

3. What happens if someone -- Linus -- decides to start selling Frosted freezes in competition with Lucy? (Better start assuming that the initial cost of entry if $5.00 for necessary capital goods which have an average lite of 10 weeks).

a. Can two businesses produce in this market and still makr profits? (Use the demand shown in Table II as the market demand).

b. Assume Linus's costs are the same as Lucy's (that is, he uses the same production techniques as Lucy). What ways would he use to compete with Lucy?

c. How would Linus's competition affect Lucy's demand curve (schedule)?

d. How would Linus' competition affect Lucy's profits?

e. What actions do you think Lucy might take, following Linus' entry into the market?

4. Why are there monopolies and markets with a relatively few sellers? List as many reasons as you can.

5. Are monopolies beneficial to the public? Stage both yes and no answers to this question

6. Use the Table below to summarize the differences between perfect competition and perfect monopoly. Complete the table for the case of pure monopoly.

MARKET CHARACTERISTICS (Supply and Demand Conditions)	MARKET CONDUCT (Price Determination, of competition between firms)	MARKET LONG-RUN PERFORMANCE
PERFECT COMPETITION		
1. Very large number of firms.	1. Firms cannot set price; they can only adjust production to try to get the highest profit.	1. The price equals cost of production and a normal profit.
2. No large-sized firms--no firms have any control over demand conditions. The firm's demand curve is a horizontal line.	2. Whenever profits are abnormally high, new firms enter production.	2. Profits are just high enough to keep firms producing, but not high enough to induce new firms to enter the industry.
3. Each firm produces a product which is idential to that produced by his competitors.	3. Firms copy each other's inventions.	3. Firms produce output using the most efficient means of production.
4. There are no barriers to entry of new firms. Whenever profits are abnormally high, new firms enter industry.		

PERFECT MONOPOLY - please go to next page.

PERFECT MONOPOLY

MARKET CHARACTERISTICS	MARKET CONDUCT	MARKET LONG-RUN PERFORMANCE

7. If you had your choice, which kind of world would you prefer--Perfect Competition, or Perfect Monopoly?

UNIT II
LESSON 7
PROGRAM

MARKET STRUCTURE

In people, perfect behavior is always suspect. We say, "That boy is too good to be true." And we can say the same thing about the "perfect" markets we have been considering -- the perfect competitive market and the perfect monopoly market. They are too good to be ture. They are models, idealizations which show relationships and which help us to explain or predict but which do not represent the real world.

In the real world, we cannot classify markets quite so neatly. In fact, it is just about impossible to find examples of perfect competition or perfect monopoly. Practically all markets lie somewhere between the two extremes.

When you are through with this lesson you will be able to identify the major types of markets in which various industries operate. You will also be able to recognize the characteristics of those markets and show what kinds of decisions can or cannot be made and why.

Please go to the next page.

1/2

Although the perfect markets are practically non-existent, they are not useless. Far from it. They are very helpful in describing the characteristics of real-life markets. But they are not sufficient to describe reality, and we therefore need to invent some more types of markets.

Before we do that, let's make sure that you have the model or perfect markets firmly under control.

Which type of perfect market do the following most closely resemble?

(a) San Francisco's crab fishing fleet with its many individually-owned boats.

(b) The lone grocery store in an 1849 Gold Rush town.

(PLEASE GO TO THE TOP OF THE NEXT PAGE WHEN YOU HAVE YOUR ANSWERS) →

(from page 9)

1/10

(B) Easy

The perfectly competitive market is one with many sellers of the same product. One more seller is not going to make any difference to the market. Equally, the new seller is not going to do much better than anybody else.

On Panel I, under "Barriers to Entry," in the spaces marked (2), insert whichever of the words "complete" and "none" correctly describes the type of market.

(PLEASE TURN TO THE BOTTOM OF THE NEXT PAGE) →

1/3

(A) The crab fishing fleet most closely resembles the perfect competitive market -- many boats catching and selling essentially the same product.

(B) The pioneer grocery store provided a sole source of supply. If you wanted to buy your groceries in town, there was just one place to buy them. Thus, its situation was one of monopoly.

(TO TOP OF NEXT PAGE) →

1/11

Characteristic No. 3 which distinguishes the types of market is

Product Differentiation.

When one product is differentiated from another, it means simply that they are, in some way, different. We'll look at that definition more closely in a moment, but it will serve for the time being.

In a perfect competitive market, how much product differentiation would you expect?

(A) A lot

(B) None

→

1/4

Each of the perfect markets can be analyzed in terms of at least three characteristics:

(1) Concentration

(2) Barriers to Entry

(3) Price Differentiation

Concentration refers simply to the number and size of sellers in a market. If there are many sellers in the market with none of them so big that they take a dominant share of the market, concentration is low. If there are only a few sellers or if only a few have the lion's share of the market, concentration is high. If all selling is concentrated in a single seller, concentration is said to be complete.

A market with high concentration more closely resembles

(A) perfect competition

(B) perfect monopoly →

1/12

(B) None

By definition, a perfect competitive market is one in which many sellers produce exactly the same product. There is no difference in the products of different firms in a perfect competitive market, or, to say it formally, there is no product differentiation.

In a perfect monopoly, on the other hand, each seller offers products that are

(A) the same

(B) different →

1/5

(B) Perfect monopoly

In perfect competition, concentration is

(A) high

(B) low

→

1/13

(B) different

By definition, a seller in a monopoly market is the sole source of his product or service. Product differentiation is

(A) zero

(B) complete

→

1/6

(B) Low.

Selling is spread among many firms, to the point where we might say that there is no concentration at all.

Which type of market is described by (A) and (B) below?

(A) Complete concentration

(B) No concentration

→

1/14

(B) complete.

The product offered in a perfect monopoly market is different enough from the products of competitors to be considered in a different market. No other product is a complete substitute for the monopoly product.

On Panel I, under "Product Differentiation" in the spaces marked (3), insert whichever of the words "none" and "complete" correctly describes the markets.

→

1/7

(A) Perfect monopoly

(B) Perfect competition

On Panel I, (page 40.) insert in the spaces marked (1) whichever of the words "complete" and "none" correctly describes the type of market.

→

1/15

If you have completed Panel I correctly to this point, you should have the characteristics of perfect competition as no concentration, no barriers to entry, and no product differentiation.

The characteristics of perfect monopoly should be shown as complete concentration, complete barrier to entry, and complete product differentiation.

If your entries on Panel I are incorrect or incomplete, please put them in order before going on.

→

1/8

The second characteristic which describes the types of market is

Barriers to Entry

In other words, it describes how hard it is to get into the business of selling a particular commodity.

Which word describes how difficult it would be to set up a business in a perfect monopoly market?

(A) Hard

(B) Easy

1/16

As you will see later, there are other characteristics which help to describe different types of market. But the three covered to this point are the most important.

Note how the extreme cases described by the perfect markets reflect the extreme of all three characteristics.

1/9

(A) Hard

In a perfect monopoly market, one company has everything "sewn up." It would be far from easy to break in -- at least it would be hard to do so for the economic reason of making a profit.

What about the perfectly competitive market? To set up a business in a perfectly competitive market would be

(A) Hard

(B) Easy

TURN BACK TO THE BOTTOM OF PAGE 2

1/17

That completes the discussion of the characteristics of the perfect markets. Next, we will look at markets as they exist in the real world.

If you wish to take a break, this is a good place to do so.

WHEN YOU ARE READY TO GO AHEAD,
PLEASE TURN TO THE TOP OF THE NEXT PAGE

5

Section 2

MARKETS IN REAL LIFE

2/1

It's time to transfer out attention to the somewhat less than "perfect" markets of reality. We are going to group real-life markets into three types, all of them lying somewhere between the extremes represented by perfect competition and perfect monopoly.

In many cities, there are stores which sell nothing but phonograph records. Which of the following best describe the characteristics of the market in which these stores operate?

Concentration: (A) none, (B) low, (C) high, (D) complete.

Barriers to Entry: (A) none, (B) low, (C) high, (D) complete.

(from page 29)

2/21 (A) Oligopoly #2

(B) Monopolistic Competition

Insert the missing words in the following:

Market Type	Concentration	Barriers to Entry	Product Differentiation
(A)...............	high	....	none
(B)...............	none	....	....

PLEASE TURN TO THE BOTTOM OF THE NEXT PAGE

2/2

Concentration: (B) low.

Barriers to Entry: (B) low.

Concentration is low because many other stores sell phonograph records.

Barriers to Entry rates low, too. There are some barriers (it takes money to set up in business, for instance), but if a need existed, it would not be hard to start a new store and enter this market.

In terms of Concentration and Barriers to Entry, which type of market does this particular business most closely resemble?

(A) Perfect Competition

(B) Perfect Monopoly

→

2/22

Market Type	Concentration	Barriers to Entry	Product Differentiation
(A) Oligopoly #1	high	high	none
(B) Perfect Competition	none	none	none

→

2/3

(A) Perfect Competition.

But now look at the third characterisitic, Product Differentiation. To arrive at a rating under this heading we might ask, "What is different about buying records in one store rather than in another?" Or, "What distinguishes one record store from other stores that sell similar products?"

Try to write down at least two things that might lead you to buy records at a particular store in preference to other, similar stores selling similar products.

→

2/3

We hope that you have noted:

(1) Each type of market can be described in terms of its characteristics.

(2) The three types of market we have just added bridge the gap between the "perfect" markets.

Remember that there are many refinements possible for each type of market. The types we have named are simply convenient labels by which we group markets for purposes of discussion.

Of the three new market types, the one that most closely resembles a perfect monopoly is (A)..............................(write your answer)

Of the three new market types, the one that most closely resembles perfect competition is (B)..............................(write your answer)

→

2/4

Some things that might distinguish the offerings of one store from another are:

Brand Names: Not too important in the record business, perhaps, but the manufacturers of some products spend millions of dollars in the hope that you will pick up their brand next time you buy.

Selection: One store may offer a much wider choice than another does. The specialized record store will have a much greater selection than will the local supermarket.

Location: A particular store may get your business simply because it is on your way home.

Service: Perhaps one record store has rooms in which you can listen to records before you buy; maybe it has a cute girl/handsome boy to wait on you, or maybe the owner knows a lot about music; or perhaps it offers a better guarantee or quicker service than its competitors.

→

2/24

(A) Oligopoly #2 (Differentiated Product)

(B) Monopolistic Competition

You may recall that as an example of an almost perfect monopoly we cited the lone grocery store in an 1849 Gold Rush town.

True or false? The grocery store in a Gold Rush town was a monopoly only so far as its local market was concerned.

→

2/5

In other product lines, dozens of other minor differences exist -- flavor, color, shape, catchy names, amount of suds, image -- and each can be exploited to make the buyer feel that the product is superior to others.

By emphasizing differences like these, each seller tries to make you feel that his product or his store offers the sole source of satisfaction for some particular want.

And a situation in which there is only one source of supply is called ....(write in word.)

→

2/25

True.

The grocery store in the Gold Rush town was a monopoly only so far as its local market was concerned. There were many other grocery stores in the nation. But none were readily available to people living in that particular town.

True or false? A business may have a monopoly because of the geographic location or extent of its market.

→

2/6

Monopoly.

Each product differentiation is a tiny step toward making the seller or product unique. It is, in other words, a step toward building a characteristic of monopoly. Note that it does NOT in fact create a monopoly. It simply moves the type of market a little away from the perfect competition model and a little closer toward perfect monopoly.

Not surprisingly, a market that has most of the characteristics of competition with some overtones of monopoly has a name that is a combination of both:

monopolistic competition

Monopolistic competition describes a market that has (a lot/a little) of the qualities of competiton and (a lot/a little) of the qualities of monopoly. →

2/26

True again. It is possible to have, in effect, a local monopoly.

Now the economist is unlikely to focus his attention on individual stores. His concern is usually with the "big picture." Thus, he is much more likely to study whole industries, collecting data on the structure, conduct, and performance of the industry. He will try to answer questions about competition within that industry and how this affects the public interest.

Working on this scale, is he likely to encounter this issue of "local monopoly"? Can you think of any large industries that apparently have local monopolies? →

2/7

Monopolistic competition has A LOT of the qualities of competition and A LITTLE of the qualities of monopoly.

Can a service industry such as television repair be classed as monopolistic competition?

2/27

There are many such "local monopolies," and many are protected by law.

For example, local authorities often license a monopoly in bus or train transportation, usually because competition would result in less than a living for all concerned. (In fact, even without competition, local transportation often has to be subsidized.)

Utility companies are often granted local monopolies for much the same reasons. (Image how the poles would sprout if there were six power companies competing to supply electricity to every home!) In return for the monopoly, government keeps strong control on rates.

2/8

Yes.

Write down the characteristics of an industry such as TV repair.

2/28

In addition to the foregoing, there is another kind of local monopoly, or, more accurately, a tendency towards monopoly, that is based on the geographic location of resources.

The cement industry is an example of this kind of monopoly. Cement can be made in most parts of the country, and the weight of the finished product makes it uneconomic to transport it any great distance.

If we consider the cement industry nationwide, organized into a group of regional markets, what characteristics might we assign?

Concentration:......................

Barriers to Entry:.......................

Product Differentiation:..................

2/9

Characteristics of the TV repair industry:

Concentration: Low. There may not be a TV repair shop on every street, but a community of any size is likely to have several of them.

Barriers to Entry: Low. Plainly, anyone going into this business would need some know-how about TV sets. He would also need a small amount of equipment and some tools. But there is little else to stop his setting up a business.

Product Differentiation: Some. The TV repairer might advertise, or do a good job so that his reputation gets around, or offer faster or cheaper service. But basically, the service offered is fixing TV sets. This repairman may try to arrange things so that in your mind he has a monopoly -- you would not think of going elsewhere if your TV needed fixing -- but to a stranger in town, one repairman would be much the same as the next.

→

2/29

If we consider the cement industry nationwide, its characteristics are:

Concentration: high

Barriers to Entry: high

Product Differentiation: none

These characteristics describe which market type?

→

2/10

On Panel I, write in "Monopolistic competition" in the space marked (4).

In the spaces marked (5), write in the characteristics of a monopolistic competiton-type market.

2/30

Oligopoly #1

But suppose we look at the cement industry from the local standpoint. Usually, there is one big plant serving the needs of an area. The cost of starting such a business forms an effective barrier to entry for most. And with nobody else making the product, product differentiation is complete. We have the characteristics of monopoly.

Imagine that the local cement-making company puts up its prices to the point where it becomes possible to ship in cement from another area. Which characteristics of the market are affected?

2/11

In the spaces marked (5) you should have written:

Concentration: low

Barriers to Entry: low

Product Differentiation: some

If your entries were incorrect or incomplete, please amend them before going ahead.

→

2/31

All characteristics are affected.

Concentration is affected. Where concentration was formerly complete, there are now two sellers in the market.

Barriers to Entry are not the same. An outsider has been able to slip in under the new price. Perhaps others can also do it.

Product Differentiation has changed its status. In the monopoly situation, cement was competing with totally different products, notably steel and lumber. Now, cement is competing with cement. And cement is cement is cement. The product is standard, with no differentiation.

→

2/12

OLIGOPOLY

As you may have guessed, the characteristics of monopolistic competition can be found in a great variety of combinations. This is a very flexible category and it includes the majority of the nation's five million different businesses.

However, there are two other types of market, rather similar to each other and much smaller in the total number of businesses included, which dominate the nation's economy. To describe them, we use a new word: Oligopoly.

Our earlier word, monopoly, comes from two Greek words, monos meaning "along" or "singly," and polein meaning "to sell" Oligopoly is also from the Greek. Its ending also means "to sell." Oligo means "a few."

Can you define oligopoly?

2/32

Using what you know about each industry, classify the following into types of market. Show the characteristics of each:

	Market Type	Concentration	Barriers to Entry	Product Diff.
Drug store in city	.....	....	....	....
Wheat production	.....	....	....	....
Telephone service	.....	....	....	......
Gas station in desert...		....	....	....

2/13

Oligopoly means that a few have control of selling.

In an oligopoly market, a few large sellers dominate the market. For example, a 1954 survey showed that there were only 28 companies producing salt in the U.S., and that four largest companies accounted for 86 per cent of the business.

This is an example of an ....
(write the word.)

→

2/33

	Market Type	Concentration	Barriers to Entry	Product Diff.
City drug store	Mon. Comp.	low	low to med.	some
Wheat production	Comp.	none	none	complete
Telephone service	Mon.	complete	complete	complete
Lone gas station	Mon.	complete	almost complete	complete

Entry into the drug store business is rated "low to medium" because it does require a certain amount of money, a licensed pharmacist, and so on. There are no barriers to entry in producing wheat because there are millions of farmers who can switch from growing one crop to another without cost.

Considered from a local point of view, the telephone service is a perfect monopoly. The desert gas station comes close to perfect monopoly since it offers its goods and services in a location where no other gas station would probably want to compete, because there isn't enough business to warrant two gas stations.

→

2/14

Oligopoly. (say it to yourself)

Most of the mass-production industries are oligopolies -- that is, a few companies dominate the market.

What are the characteristics of an oligopoly?

Concentration: (A) none, (B) some, (C) high, (D) complete.

Barriers to Entry: (A) none, (B) some, (C) high, (D) complete.

2/34

Look at Panel #2. What type of market structure does the cigarette industry represent?

2/15

Concentration: (C) high. By definition, an oligopoly is a market in which control is concentrated in the hands of a few large sellers.

Barriers to Entry: (C) high. This may be less obvious. But if it were easy to enter this market (and, of course, stay in it), there would not be just a few sellers. In most cases, it takes a lot of money and/or know-how to enter an oligopoly.

We can distinguish between two kinds of oligopoly market. We will call them simply Oligopoly #1 and Oligopoly #2.

On Panel I, in space (6), write Oligopoly #1, and in space (7), write Oligopoly #2. Under Concentration and Barriers to Entry, write "high" in each case.

The characteristic in which these two types of oligopoly differ is ....(write in the missing word(s)).

2/35

The cigarett industry is an example of Oligopoly #2.

It is a highly concentrated market, dominated by the "Big Three" of the business. The cost of entering such a business is high and its marketing problems and distribution problems are extensive. Product differentiation is present; differences between one brand of filter-tipped or mentholated cigarette and another are probably small, but manufacturers build up tremendous brand loyalty in the minds of consumers. (Notice how much cigarette advertising is aimed at "switching" such loyalties.)

2/16

It's the characteristic that's left -- Product Differentiation.

In one type of oligopoly, the product is standard; all produce the same product. For example, in what is called the primary aluminum industry, there are just three companies. All produce aluminum ingots.

We will classify such a market as Oligopoly #1.

On Panel I, under sht words Oligopoly #1, insert the words: "standard product."

In addition, you can complete the entry under Product Differentiation by inserting the word......................(what's the word?)

2/36

Please look at Panel #3.

In your opinion, what type of market structure does the bituminous coal industry most closely represent?

2/17

none.

Now let's look at the automobile industry. One might say that this industry is basically in the business of producing gasoline engine-powered transportation. But can we truly say that automobile makers have a standard product?

→

2/37

You might reasonably have called it either Oligopoly #2 or Monopolistic Competition.

Look at the characteristics:

Concentration: Relatively low, with up to 9000 mines. But 68 per cent of 1956 production came from less than 2 per cent of mines. The top ten mines have been gaining more of the business. Thus there are elements of both Oligopoly and Monopolistic Competition.

Barriers to Entry: Money. A deep mine costs millions of dollars. That makes it hard for most individuals to break in, but a company with a need for coal or coal products might regard this as a relatively small sum. Again, a toss-up between Oligopoly and Monopolistic Competition.

Product Differentiation: You are told that there is some.

→

2/18

No.

In fact, each automobile manfacturer tries hard to convince the public not only that his product is better than any other, but that even within his product line there are many shapes, sizes, colors, horsepowers, and all kinds of optional features. Or, to say that another way, the products are differentiated.

Thus, on Panel I under Oligopoly #2, you should insert the words: "differentiated product."

→

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As an individual, you might classify the bituminous coal industry as an Oligopoly #2. But if you were the chairman of the board of a billion-dollar company, you would regard it as Monopolistic Competition. As business investments go, investment in a coal mine is "small potatoes." Economists classify the industry as monopolistic competition.

→

2/19

On Panel I, which word should go in space (8) under Product Differentiation for Oligopoly #2 ?

(A) none

(B) some

2/39

Those are the major division of market structure as they will be discussed in this course.

In the next section we will discuss the reasons for creating models of perfect markets and for dividing the market structure of the economy into the various categories.

2/20

(B) some

Insert the missing Market Types in the following:

Market Type	Concentration	Barriers to Entry	Product Differentiation
(A)....................	high	high	some
(B)....................	low	low	some

TURN BACK TO THE BEGINNING OF SECTION 2,
BOTTOM OF PAGE 10.

2/40

If you want ot quit or take a break, this is a convenient place to do it.

When you are ready to go ahead....

PLEASE GO TO THE TOP OF THE NEXT PAGE

MARKET POWER

Why are we so concerned with the characteristics of the different types of markets?

A major reason is that by analyzing these characteristics the economist can describe and predict how firms compete with each other in a particular market.

In competing with each other, firms make three kinds of business decision:

1. Price and quantity of product;
2. Quality of product;
3. Other ways of handling competition.

The last category includes decisions about whether to buy out competitors, gain control of vital resources, or seek some sort of government intervention such as patent protection, subsidies, or tax breaks.

PLEASE TURN TO THE TOP OF THE NEXT PAGE

3/11 (from page 39)

(A) is correct

In Oligopoly #1 there is no product differentiation. All competitors sell the same product at a price delicately balanced between profit and demand. A seller in an Oligopoly #1 market has less market power than one in an Oligopoly #2 market.

It's an interesting point that the product differentiation which gets such emphasis in Oligopoly #2 markets is often not much more than a state of mind. For example, consumers can develop a great loyalty to a brand name, to the point where they will not experiment with other brands and will not buy if their favorite brand is not available.

3/2

Generally speaking, the stronger the three characteristics of a market (Concentration, Barriers to Entry, and Product Differentiation), the greater the seller's market power

For examples of market power, we can look to the nonexistent perfect worlds of the economist's models of competition and monopoly. These theoretical extreme cases make it easier to see what happens in the real world. ⟶

3/12

TWO MORE CHARACTERISTICS

The characteristics listed so far describe types of markets and help us to analyze the market power of an industry operating in that market.

Many other characteristics are used in economic analysis of market power. Here, we will consider only two:

(1) Growth rate of market demand;

(2) Price elasticity.

Both enable us to predict the decisions that must be made in a given market. Both affect all market types in the same way.

⟶

3/3

In a perfect monopoly, the three characteristics are present in full strength. The seller is, by definition, the sole source of a unique product which no one else may make. Provided he knows the demand curve for his product, he can adjust his production, quality, and price to maximize his profits without worrying how someone else is going to react. He has great market power.

In perfect competition, on the other hand, the seller has no market power. The characteristics are each zero in his case. By definition, he is operating in a market containing many sellers, easy entry, and a standard product. The supply and demand conditions of the market set his prices and the producer adjusts to this price by producing that level of output which gives him the best profit. He has little control over quality because his survival depends upon keeping up with the improvements that everyone else in his market makes.

→

3/13

Growth rate of market demand describes the rate at which demand for a product is changing over time.

Suppose, for example, that over a period, for one industry, demand grows faster than it does in another industry. How might this affect the pricing decisions of a producer?

(A) He will lower his price.

(B) He will fight to hold his price steady.

(C) He will raise his price.

→

3/4

The seller operating in a market that resembles perfect competition can gain market power only by changing the characteristics of his market. This means that he must innovate -- he must improve his methods so that he can operate more cheaply, or he must offer a product that is in some way superior to that of his competitors (this may be a real superiority or it may be simply a product differentiation based on something less concrete, such as brand name loyalty.)

In other words, to gain market power the seller must move his market in the direction of monopoly.

Select the word which makes the following statement an accurate summary of what has just been said:

> The more closely the market resembles a perfect monopoly, the (greater/smaller) the seller's market power.

→

3/14

(C)

If demand growth is relatively high, and, perhaps, even outstripping production, the product is becoming scarcer, and buyers will compete for the availabile supply. The tendency is to raise prices.

On the other hand, there is a limit to how far prices should be raised. The supplier wants as much market power as he can command. Thus, he will try to keep the market concentrated by maintaining barriers to entry. He must not let prices get so high that everybody and his brother wants in; also he must not charge so much as to cut off new ways of using his product.

→

3/5

The more closely the market resembles a perfect monopoly, the GREATER the seller's market power.

The table you have drawn up on Panel I shows Oligopoly #2 next to Perfect Monopoly. Which would you expect to have more market power?

(A) Oligopoly #1
(B) Oligopoly #2

3/15

The businessman continually walks the tightrope of supply and demand conditions. A knowledge of the characteristics of his market helps him make these decisions. The second additional characteristics we have mentioned helps him decide the safe limits of any price change:

Price elasticity describes how buyers respond to changes in price.

If a small price change leads to a relatively large change in quantities sold, demand is said to be elastic. If it leads to little change in quantities sold, demand is said to be inelastic.

Some years ago, many daily newspapers cost a nickel. Most have since raised their prices to a dime, but apart from short-term fluctuations immediately following the price increase, total sales were little affect by the new price.

Prices of newspapers are elastic/inelastic.

3/6

(B) Oligopoly #2.

Oligopoly #2 more closely resembles a perfect monopoly than does #1. And the more closely a market resembles perfect monopoly, the more market power it has.

In which characteristic does Oligopoly #1 differ from Oligopoly #2?

3/16

Inelastic.

Demand does not change drastically with changes in price.

In general, price elasticity is geared to two qualities of the product:

(1) Ease of substitution. If it is easy to find a substitute for the product, the price and demand will be elastic.

(2) Absolute price. High-priced items tend to be more elastic than low-priced items.

What do you think the demand elasticity of an expensive luxury item would be?

(A) elastic.

(B) inelastic.

3/7

Product Differentiation.

Oligopoly #1 has no product differentiation, while Oligopoly #2 has some product differentiation.

Which of the following are examples of ways in which products might be differentiated?

(A) Smell	(C) Brand name
(B) Color	(D) Comfort

3/17

High price tends to make for elasticity.

Luxury (an item that is not a necessity and which can therefore be substituted easily) also makes for elasticity.

Thus, the answer is (A).

Given that information, we might expect the price of diamonds to be elastic. And it is. A 10 per cent drop in price may bring about a 50 per cent increase in the number of diamonds sold. A small price change leads to a big change in demand.

If the price of diamonds increases 10 per cent,

(A) What happens to demand?

(B) Why?

3/8

All are ways in which products might be differentiated (that is, ways in which a product might differ from a similar product.)

For example, a brand of soap might be essentially the same as another brand except for a slight difference in perfume; one manufacturer might put out a two-tone toothbrush to compete with others that have only one color; advertisers may drum their brand name into your ears in hopes that you will see only that name when you next reach for a box of cereal or a candy bar.

3/18

(A) Demand is elastic. We can expect it to drop sharply with a small increase in price.

(B) Why? Diamonds are a luxury item. If the price goes up, the few people interested in collecting diamonds don't really need them. So they hold onto their money or spend it on alternative luxuries.

In a perfect competition market, you would expect price to be what?

(A) elastic

(B) inelastic

3/9

Some of the product differentiations we have suggested may strike you as being essentially trivial. Others may seem to be good, solid advantages.

The point is that the seller in this kind of market wants differentiation for his product. And he wants this differentiation in the mind of the buyer. It does not have to be a great differentiation. Just enough to tip the scale when people are making the decision to buy.

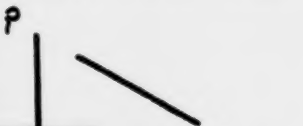
Each differentiation gives a producer market power -- something to sing about in his jingles, something by which he can commend his product to you.

3/19

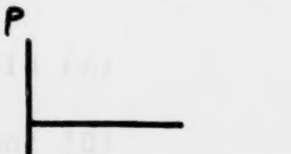
(A) Elastic.

We said earlier that prices are elastic if there is easy substitution for a product. In perfect competition, many sellers offer identical products. If one seller boosts his prices but nobody else in his market does, people will tend to go to his competitors. We say that the demand curve of a perfect competitor is infinitely elastic. What shape would the demand curve for a perfect competitor look like?

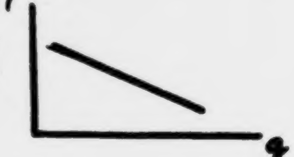
(A)



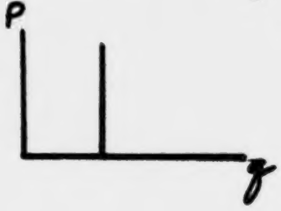
(C)



(B)



(D)



3/10

Which of these statements is true of Oligopoly #1?

(A) The producer has restricted market power. His independence in market decisions is limited since he finds it hard to make his product different from that of his competitors.

(B) The producer has a lot of market power and can set his own policies for price and quality of his own product.

PLEASE TURN TO THE BOTTOM OF PAGE 30

3/20

(C) The price is set by the market. No change in amount offered for sale by one seller will change price.

To summarize:

Prices tend to be elastic for

- Luxuries
- Things that have close substitutes
- High-priced goods or services

Prices tend to be inelastic for

- Necessities
- Things that are hard to substitute
- Low-priced goods or services.

PANEL I

TYPE OF MARKET	CONCENTRATION	BARRIERS TO ENTRY	PRODUCT DIFFERENTIATION
Perfect Competition	(1)	(2)	(3)
(4)	(5)	(5)	(5)
(6)			
(7)			(8)
Perfect Monopoly	(1)	(2)	(3)

PANEL 2 MARKET STRUCTURE OF THE CIGARETTE INDUSTRIES

Market Concentration	Barriers to Entry	Product Differentiation	Miscellaneous
In 1959, the "big three" companies market share was 68.8%. Reynolds was largest with 30.2%, American 2nd: Liggett and Myers with 12.5%, Phillip Morris with 9.2%, Lorillard with 11.7%. Brown and Williamson with 9.8%. The largest 6 firms controll almost 100% of the market.	1. High advertising costs equal to 10% of price. 2. expensive field sales activities to provide for distribution of cigarettes to retailers. 3. machinery and equipment readily adaptable to quite small or very large factories. Output of an individual machine is small with respect to that of the whole firm. 1 machine can produce 750-1600 cigarettes/minute. American Tobacco had 600 machines in 1942.	leading brands in any one type of cigarette are physically almost identical, yet have slight differences in leaf blend and flavoring treatment. Customers show preferences for individual brands.	1. low elasticity of demand for cigarettes in general, high elasticity for any one brand. 2. long-run growth: cancer scare produced temporary decline in cigarette consumption.

PANEL 3. MARKET STRUCTURE OF THE BITUMINOUS COAL INDUSTRY

Market Concentration	Barriers to Entry	Product Differentiation	Miscellaneous
1. # mines is large, between 6000-9000, depending on the year.	1. "Deep" mines require upwards on investment of $5,000,000 for a class I mine.	1. Different consumers require coal of different sized pieces, coal with different physical properties --degree of volatilities, ash, sulpher content.	1. Geological and physical conditions of a mine largely determine the cost of production.
2. In 1956 the 107 largest coal firms produced 68% of all coal mined, with the largest producing 8%.	2. Between 1940 and 1957 # of mines in operation varied between 6000 and 9000.		2. Cost does not determine quality of the product; quality depends on the deposits.
3. Most coal is produced in a relatively small area.	3. Railroads have encouraged new mine areas by charging lower rates per ton mile.		3. Substantial cyclical and seasonal changes in demand.
4. Ten largest firms increased their share from 16-26% between 1946 and 1956.	4. Freight charges added an average of 72% to the cost of coal, F.O.B. the mine in 1956.		4. Competitive cost position of a mine also depends on how close it is to important markets for coal.
			5. Coal's share in the total fuel market has been reduced to ¼ of the total, compared to 2/3 in 1920.
			6. There are new uses for coal to produce other products.
			7. Inelastic, short-run demand.

MARKET CONCENTRATION	BARRIERS TO ENTRY	PRODUCT DIFFERENTIATION	MISCELLANEOUS
Industry divided into four stages of production: In 1959, the top 12 steel companies controlled 85% of iron ore reserves, 86% of pig iron production, 83% steel ingot production, 80% finish hot-rolled production. U.S. Steel, the largest firm, controlled from 27 to 33% of the market in each category. Furthermore, since different companies specialize in different regional market areas, concentration is higher than the figures above indicate.	1. The nine largest steel producers and the four largest iron ore merchants control 95% of the reserves in the Lake Superior district which produces 85% of our iron ore requirements. Major producers also control foreign iron ore reserves. 2. Integration of production--tendency for one firm to produce at each stage of production--has increased since 1939, reducing the number of independent stell companies producing at only one stage of production. 3. Transportation costs are high. 4. There are economies to be obtained from integrating some stages of production. 5. "Optimal" size capacity = 2.5 mil. ingot tons/year.	1. At early stages of production--iron ore mining, pig iron production, stell ingot production, finished hot-rolled production are produced to standard specification. 2. Febricated steel products are differentiated. 3. Brand names and trade marks are unimportant.	1. Steel producers say that the demand for steel is very inelastic because: a) it is a raw material with a derived demand; its demand depends upon the demand for autos, etc. b) substitution is unimportant in the shortrun; c) steel represents a small % of total cost of the things made out of steel.

PANEL 4: MARKET STRUCTURE FOR THE STEEL INDUSTRY

QUIZ ON MARKET STRUCTURE. After you have completed the Program, check your understanding of the material by completing the following:

1. Name the five types of market discussed in the lesson.

2. Name the three major characteristics by which market types are classified.

3. A market has many sellers. It can be entered by anyone with a small amount of capital. The products offered are similar but differ in color, size, and quality. What type of market is this?

4. The products in a given market are mass-produced by a relatively small number of companies using expensive machinery and a large labor force. The product of each company is identical to all others. What type of market is this?

5. In what kind of market do the following operate?
   (a) hamburger stand.
   (b) automobile manufacturer.
   (c) sculptor.

6. Of the three "industries" named above, is one closer to being an example of perfect monopoly than the others? If so, which is it?

7. Is one closer to being an example of perfect competition than the others? If so, which is it?

8. Look at Panel 4 (steel industry) What are the characteristics of this industry? What type of market does it represent?

9. Which would have the greater market power: (a) an example of perfect competition, (b) a department store, or (c) an example of perfect monopoly?

10. Which of the following has the highest price elasticity?
    (a) a sack of potatoes.
    (b) a fur coat.
    (c) a house.
    (d) a ballpoint pen.

11. Which, if any, of the following statements are true?
    (a) A product that has an inelastic price cannot be changed in price.
    (b) High elasticity means that even when the price changes, the demand for the product does not change drastically.
    (c) Any luxury item has high price elasticity.
    (d) Low-priced items tend to have inelastic prices.

12. Which, if any, of the following statements are ture?
    (a) When the growth rate of demand increases, concentration tends to decrease.
    (b) In monopolistic competition, an increase in the growth rate of demand tends to increase the barriers to entry.
    (c) An increase in the growth rate of demand tends to bring about a decrease in price.

UNIT II
LESSON 8
STUDENT MATERIALS

OUTLINE OF THE STRUCTURAL CHARACTERISTICS OF THE ALUMINUM INDUSTRY

I. Industry Structure

A. Stages of Aluminum Production

1. The aluminum industry is divided into five sectors or sub-industries according to the stage of production. Each stage involves a distinct technology and usually a plant in a separate geographic location. (see Figure #1)
    - a. Stage I -- Bauxite Mining
        - (1) Mining and processing of bauxite (aluminum ore)
        - (2) Mining and processing of fluorspar, a chemical compound essential in the reduction of aluminum.
        - (3) Transportation of bauxite and flourspar ores from the mines abroad to domestic processing plants in company-owned and operated ships.
    - b. Stage II -- Alumina Refining
        - (1) Refining of bauxite into the mineral compound aluminum oxide, commonly called alumina.
        - (2) The manufacture of all other raw materials, such as synthetic cryolite, which are essential for the production of aluminum metal.
    - c. Stage III -- Aluminum Reduction
        - (1) Reduction of alumina (dissolved in a cryolite solution) by an electrolytic process to produce primary aluminum metal.
        - (2) Generation of electric energy required in the reduction process.
            - (a) Most primary producers operate their own power plants.
            - (b) In some instances firms locate reduction plants near some major private or government-owned power facilities.
    - d. Stage IV -- Semi-fabrication
        - (1) Aluminum ingot is fabricated into either semi-finished or final form.
        - (2) About three-quarters is processed into mill-end products. Most of the remainder is used in castings.
    - e. Stage V -- Final Manufacture of Aluminum Products
        - (1) Aluminum mill-products are subject to further processing into almost every conceivable type of durable product.

B. Vertical Integration in the Aluminum Industry

1. Producers in the aluminum industry may be classified according to degree of vertical integration:

(a) Fully integrated producers are those engaged in all five stages of aluminum production.
(b) Partially integrated producers are those engaged in stages 3.4 and 5 of aluminum production, i.e., reduction of alumina into primary aluminum and fabrication of aluminum metal into semi-finished and finished forms.
(c) Independent fabricators are those who participate in only one or two stages of fabricated aluminum, i.e., stages 4 & 5.

2. Advantages of Vertical integration:
   (a) It guarantees the integrated firm an adequate supply of aluminum metal for its fabricating needs (probably at a lower cost than if it were a buyer).
   (b) It provides a captive market through its own fabricating plants for increased sales of aluminum metal.
   (c) It gives the integrated firm a broader earnings base when profit margins are low on fabricated products compared with primary metal.

II. Market Structure of Aluminum Industry and Subsectors

A. Seller Concentration

1. Seller concentration in the aluminum industry has steadily declined in the last thirty years.
   (a) Up to World War II, the aluminum industry was virtually a monopoly controlled by the Aluminum Company of America.
   (b) Since the end of World War II, seven new firms have entered the industry, partly a result of the U.S. government efforts to increase competition and partly a result of the reduction of certain barriers to entry (see Figure 2).

2. Seller concentration in the industry today will be described by stages of aluminum production.
   (a) Stage I
      1. Only the Big Three and Ormet are involved in this stage of production.
      2. The Big Three own and control extensive deposits of bauxite both in the United States and abroad.
      3. Ormet, the smallest producer, has no mines of its own but purchases its bauxite supplies from foreign sources on a long-term lease.
      4. To enlarge their reserves, the Big Three and Ormet are presently developing new high quality ore deposits in Australia, Ghana, and Guinea West Africa.
      5. Figures are not currently available on the relative size of each firm's bauxite reserves.

   (b) Stage II
      1. Only the Big Three and Ormet are engaged in this stage of production.
      2. In 1964, there were eight domestic alumina plants. (The number of plants and percentage of total alumina capacity for each integrated producer is shown in Figure 4.)

3. In addition to its domestic alumina plants, Alcoa also owns two plants in Australia and Suriname.
4. A number of foreign based alumina plants are being planned or are under construction abroad by other integrated producers.
5. Most of the alumina output of the Big Three is produced for their own aluminum reduction plants; a part, however, is sold to the partially integrated firms for use in the latters' reduction facilities.
6. Ormet produces alumina only for its own reduction plants.

c. Stage III
   1. All eight integrated producers are engaged in the reduction of primary aluminum.
   2. The changes in market shares of the Big Three primary producers and the Little Four--for selected years 1940-1964--is shown in Figure 3.
      (a) With the entry of four new firms since that time, the Big Three's share of the market has been reduced to 83 per cent. In 1964 the fully integrated producers had 92 per cent of the industry output and the partially integrated producers had 8 per cent.
   3. The Big Three produce aluminum metal both for their own fabricating plants and for general sale to the independent fabricators.
   4. The smaller firms produce aluminum metal mainly for their own fabricating plants, rather than for general sale.
   5. In addition to domestic production of aluminum, there are three competing sqources supplying aluminum Ingot (see Figure 5).
      (a) Foreign Imports
         1. Foreign imports constitute 12.5 per cent of the U.S. aluminum ingot supply; grown by 2.5 per cent since 1958.
         2. Two-thirds of these shipments come from Aluminium Limited in Canada, the major foreign producer.
         3. Most of the primary aluminum imports are sold to the non-integrated fabricators, but some are sold to primary producers under long-term contract.
         4. In periods of excess capacity, imports provide healthy competition to domestic primary producers.
         5. In periods of excess demand, they relieve some of the pressure on the Big Three to supply the independent fabricators, thus helping to maintain and expand the position of the integrated producers in the domestic semi-finished and end-product markets.
      (b) Secondary Smelters
         1. Secondary smelters produce secondary aluminum from both new and used aluminum scrap. This source provides 15.5 per cent of the total domestic supply of aluminum metal.
         2. There are approximately 92 secondary smelters but three firms dominate the industry: American Metal Climax, American Smelting and Refining, and U. S.

Reduction.

3. Secondary aluminum is an inferior substitute for primary aluminum in most applications, except for aluminum castings. The principal customers of the secondary smelters, therefore, are the foundries and die-casters.

(c) U.S. Government Stockpile

1. The U.S. surplus stockpile of aluminum amounted to 1.4 million tons in November, 1965, equivalent to half a year's output of the primary producers.
2. The government has the power to sell this surplus to the open market and could, if it wished, affect the supply conditions or the primary aluminum industry.
3. To assure an orderly disposition of this surplus, the industry recently negotiated an agreement with the government, setting forth the rate of government sale of the stockpile surplus.

d. Stages IV and V

1. In stage IV there are approximately 200 domestic fabricating companies making mill products (1965 figures); 3000 fabricators of castings (1955 figures). There are major types of fabricated products (see Table I).
2. The Big Three are still the leading companies in aluminum fabrication, accounting for over three-fifths of the tonnage sales of fabricated and semi-fabricated products. They are most keenly concentrated in the fabrication of aluminum mill-products.
3. In 1955 there were 14,000 end-products manufacturers in Stage V.

B. Product Differentiation

1. In general, the aluminum industry has little if any product differentiation.
   - a. Primary aluminum and fabricated products are standardized according to certain specifications. Some product differentiation exists, however, at Stage V for end-products made of aluminum.
   - b. For the most part, producers differentiate their products by services such as deliveries, technical service, etc.
   - c. Advertising does little to distinguish products of different firms.
   - d. Even though integrated firms engage in some marketing promotion to differentiate their product from their rivals' stressing service and reliability, etc. nonetheless, the independent fabricator buys from several sources of supply, provided they are all the same price.
   - e. Product differentiation is more pronounced in consumer end-product goods, but even in those items it is considerably less important than for such products as cigarettes and automobiles.

C. Barriers to Entry

1. Scale Economics
   - a. Stage I
     - (1) Open-strip mining of bauxite ore requires a relatively small operation. Entry should normally be relatively easy.
     - (2) However, since most bauxite deposits are now in underdeveloped countries, the opening up of such deposits requires large expenditures for construction of port facilities and railroads, which are economically feasible only for large-scale projects.
   - b. Stage II
     - (1) Alumina plants require medium-sized economies of scale.
     - (2) The eight domestic alumina plants in existence in 1963 each had between 6.5 per cent and 19.7 per cent of the industry's capacity (see Figure 4)
       - (a) Ormet, the smallest plant, had 6.5 per cent of the total alumina capacity.
       - (b) Alcoa, the largest, had 18.7 per cent of the industry's capacity.
   - c. Stage III
     - (1) The aluminum reduction process can be quite small since the process is carried out in numerous discrete production units called electric pots or cells.
     - (2) Formerly there were very large economies of scale plants of the need to construct private hydro-electric plants to generate power for aluminum reduction plants.
     - (3) Since World War II, this barrier to entry has been reduced for two reasons:
       - (a) The federal government has built a number of large power plants throughout the country.
       - (b) New advanced techniques in the extraction and utilization of gas, lignite and bituminous coal have made thermal (steam) generation of electric energy competitive with hydro-electric power. Since one relatively small steam plant can efficiently supply one reduction plant with electric power, large-scale electric power plants are no longer required.
     - (4) Summary of Barriers to Entry for Stages I, II and III. Ease of entry into the industry on the basis of economies of scale depends upon whether new firms enter the industry as fully or partially integrated producers.
       1. If full vertical integration is attempted, then the new firm faces medium to high barriers to entry due to sizeable economies of scale in Stages I and II.
       2. With partial integration--i.e., entry into aluminum reduction only--the size of the barrier to entry is considerably reduced.
   - d. Stages IV and V

     Small plants are efficient except for rolling mills to fabricate sheet metal. Here there are substantial economies of scale.

2. Capital Requirements. Capital requirements also depends upon the degree of vertical integration.
   a. If entry into aluminum reduction only is considered, the cost of an efficiently sized smelter is $66,000,000.
   b. If entry as a fully integrated producer is contemplated, the cost is estimated somewhere between $280 - 380,000,000.
      (1) These figures do no include investment in rolling mills and other fabricating units needed to market aluminum successfully.
   c. For Stages IV and V, capital requirements are relatively low except for rolling mills for aluminum sheet production.

3. Product Differentiation
   a. Product differentiation does not create a significant barrier to entry because aluminum metal and mill-end items are standardized products.

4. Absolute Cost Disadvantages
   a. For Stages I, II and III, the older established aluminum firms have certain cost advantages over new entrants into the industry for a number of reasons:
      (1) Inflation of construction costs since the 1950's.
      (2) Availability of cheap hydro-electric power sites for older capacity.
      (3) Generous government assistance to the older capacity in the 1940's and 1950's in the form of accelerated write-offs, tax incentives and profitable orders.
   b. Absolute cost barriers are not so substantial, however, as to preclude entry.
      (1) Today the basic process is unpatented, and sufficient know-how is publicly available.
      (2) Raw materials essential to aluminum production are not completely controlled by existing firms.
   c. For Stage IV and V, independent firms face a number of cost disadvantages as compared with the integrated firms.
      (1) They are usually at a selling disadvantage because they are unable to match the large-scale marketing expenditures undertaken by integrated firms to sell new applications of aluminum.
      (2) In periods of peak demand, the non-integrated firms have in the past been forced to purchase secondary aluminum at premium prices because the primary producers tended to supply their own needs first.
         (a) Since the reduction of the tariff on aluminum ingot in 1958, the independents are no longer completely dependent on the ingot supplies of domestic primary producers.

D. Growth of Demand

1. The primary aluminum (Stages I, II, and III) industry has been among the fastest growing in the nation's economy, experiencing a 73 per cent increase in use during the years 1950-1964. (see Figure 6)

2. Among the important factors responsible for aluminum's fast growth rate has been:
   a. Aluminum's unique physical properties of light weight, corrosion resistance and conductivity.
   b. Its low cost relative to other nonferrous metals and materials;
   c. The industry's aggressive research and products program to develop new uses for aluminum;
   d. The industry's pricing policies to promote new end-produced uses;
   e. The metal's expanding use in defense and space requirements of the federal government.
3. Growth in aluminum has been largely at the expense of competing metals and materials.
   a. For example, aluminum competes with wood in the construction industry; with steel in the transportation industry; with copper in the electrical industry; tin-coated steel in the container-packaging industry.
   b. The growth in the end-use of aluminum since World War II, shown in Figure 7, which compares the pattern of aluminum consumption for the years 1948 and 1964.
4. Consumption of aluminum is highly cyclical and fluctuates with ups and downs of the economy as a whole.
   a. In times of general economic expansion, aluminum exhibits a higher rate of growth than the average for the economy.
   b. During economic slowdowns it experiences a sharper decline in the rate of growth than the average.

E. Demand Elasticity

1. The elasticity of demand for aluminum metal and products is influenced by four factors:
   a. whether the price change is short-run or long run;
   b. whether substitutes are available for the various uses; demand is elastic if there are substitutes available;
   c. whether the price change is for established or new uses; for new uses, demand is elastic;
   d. whether the long-run price shows stability or instability; if the price is stable in the long-run, demand tends to be elastic.

TABLE I

MARKET CONCENTRATION STAGES IV AND V
Market Share by Integrated and Nonintegrated Producers of Marjo Fabricated Aluminum Products, 1958

Type of Fabricated Product	Integrated Producers		Independent Producers	Important of Sector: Total Net Shipments
	No. of Producers	Percent of Tot. shipments	No. of Producers	In Thousands of Net Tons
Major Mill Shapes	6		160	
Sheet and Plate		90.5		676.5
Foil		78.8		
Wire and Cable		76.7		172.9
Extrusions		44.5		410.0
Castings[1]		9.0	3,000 (1955)	320.9
End Products		5.4	14,000	n.a.

1. Until 1955, castings were made almost exclusively by independent foundries and diecasters from secondary aluminum metal. Since 1955, the major auto companies have been producing castings for their auto parts in their own "captive shops." Instead of using secondary metal, which normally sells at a lower price than primary, they purchase molten primary metal directly from the major aluminum producers at discount prices. Because of the cost advantages to the auto firms, captive shops using primary metal have shown more growth in recent years then the independent fabricators.

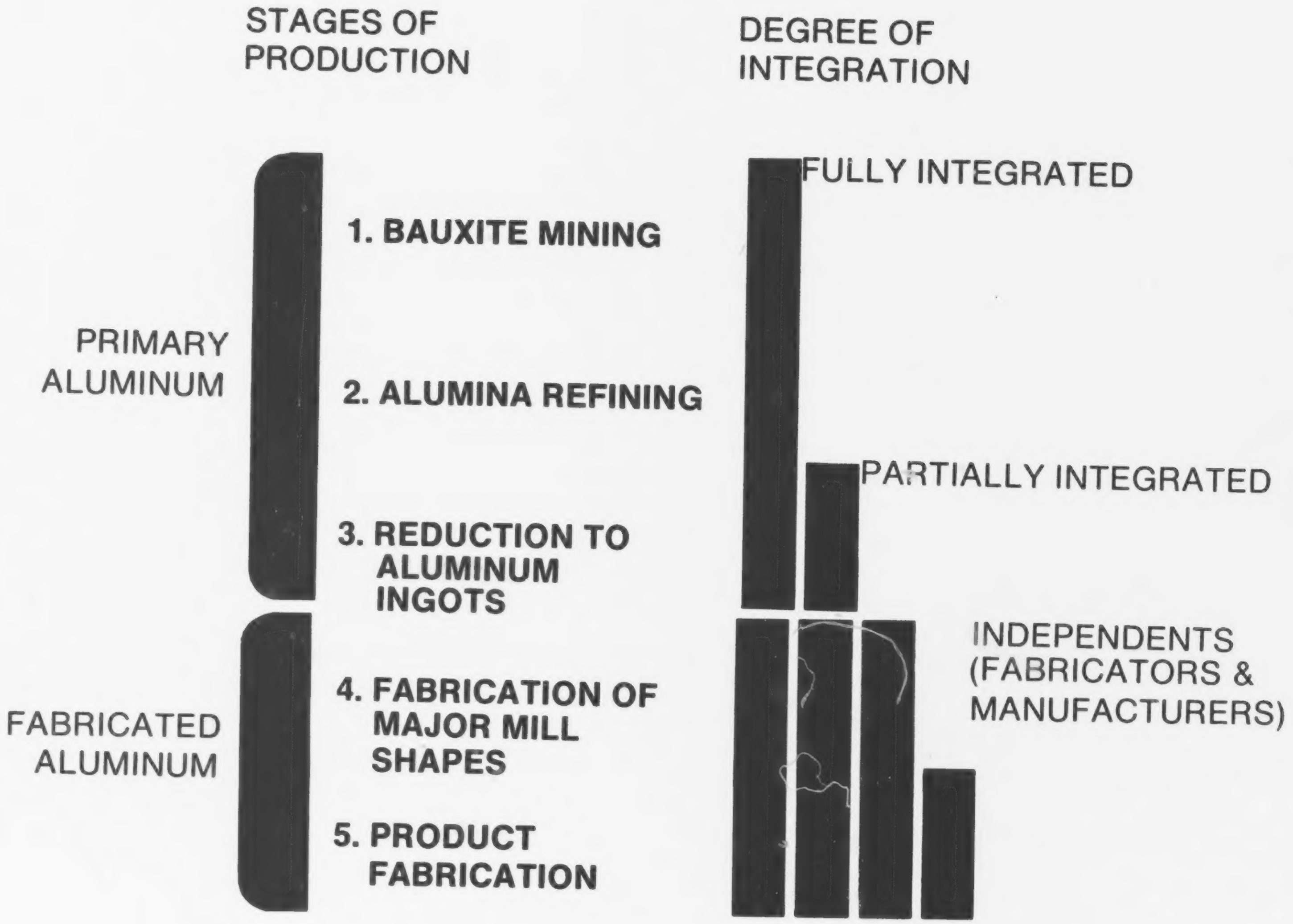
Source: Walter Adams, ed. The Structure of American Industry (New York; The Macmillan Co.) p. 206-7; Standard and Poor's Industry Surveys, Vol. II, pp. 1796-97.

TABLE 2

SUMMARY TABLE OF MARKET STRUCTURE OF ALUMINUM INDUSTRY

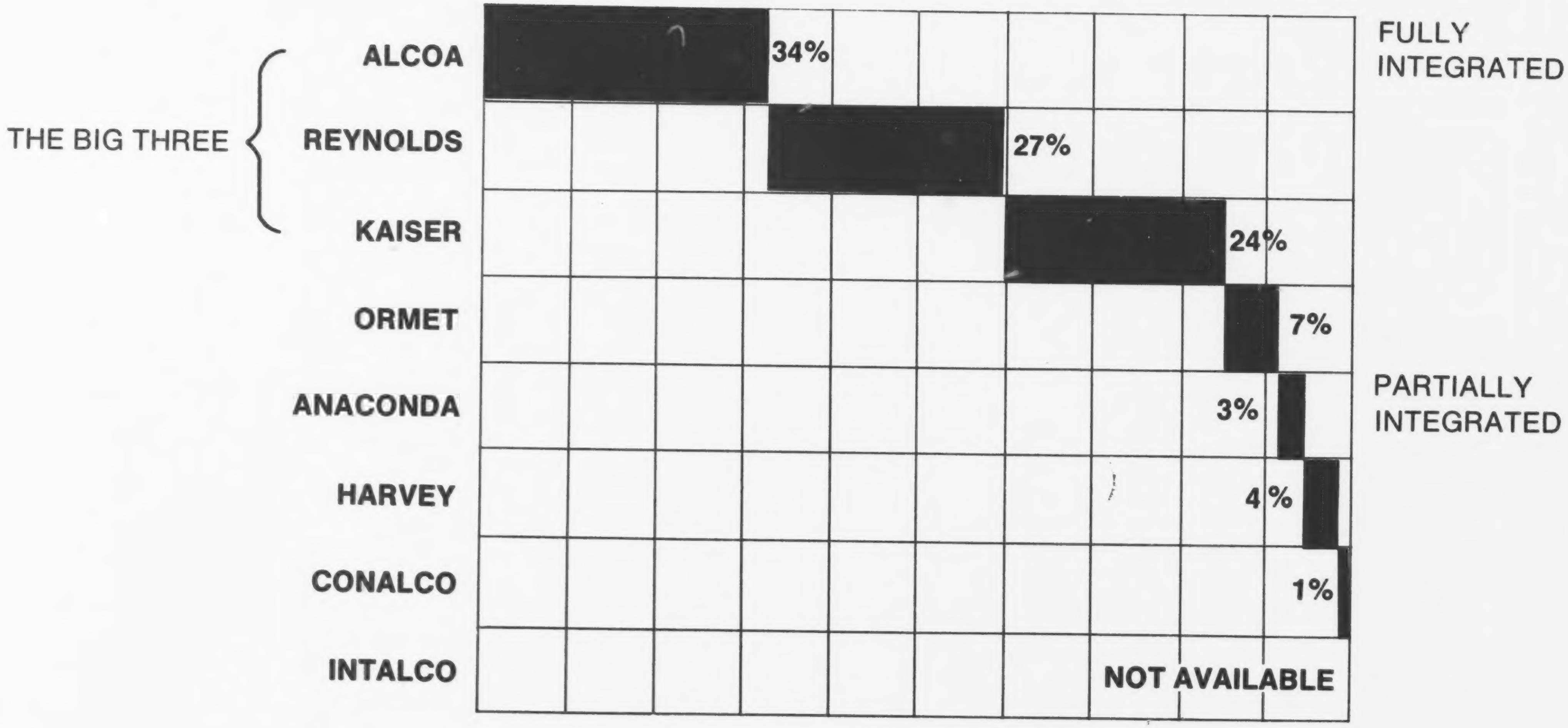
Stages of Production	Concentration	Barriers to Entry	Product Differentiation	Demand Elasticity	Demand Growth
Primary Aluminum Products Stage 1: Mining	Big 3 produce 100% of bauxite.	High cost of developing mines in underdeveloped countries	Standard	Inelastic in short-run	High, +72% in last 14 years
Stage 2: Refining Alumina	Big 3 & Ormet produce 100% of alumina	Fairly high	Standard	Elastic in long-tun	High
Stage 3: Reduction, Primary Aluminum	The 4 fully integrated firms produce 92%; 4 partially integrated produce 8%.	Not too high; Main economies come in electric power production.	Standard	"	High
Fabricated Aluminum Stage 4: Fabrication	200 firms, but integrated firms produce 80-90% of major mill shapes, except for extrusions	Low except for sheet metal	Standard		High
Stage 5: Aluminum Products	14,000 firms integrated firms produce 5.4% of output.	Low	Some differentiation.		High

1 Aluminum Industry Structure


STAGES OF PRODUCTION
DEGREE OF INTEGRATION
PRIMARY ALUMINUM
1. BAUXITE MINING
2. ALUMINA REFINING
3. REDUCTION TO ALUMINUM INGOTS
FABRICATED ALUMINUM
4. FABRICATION OF MAJOR MILL SHAPES
5. PRODUCT FABRICATION
FULLY INTEGRATED
PARTIALLY INTEGRATED
INDEPENDENTS (FABRICATORS & MANUFACTURERS)

2 Aluminum Industry Market Concentration

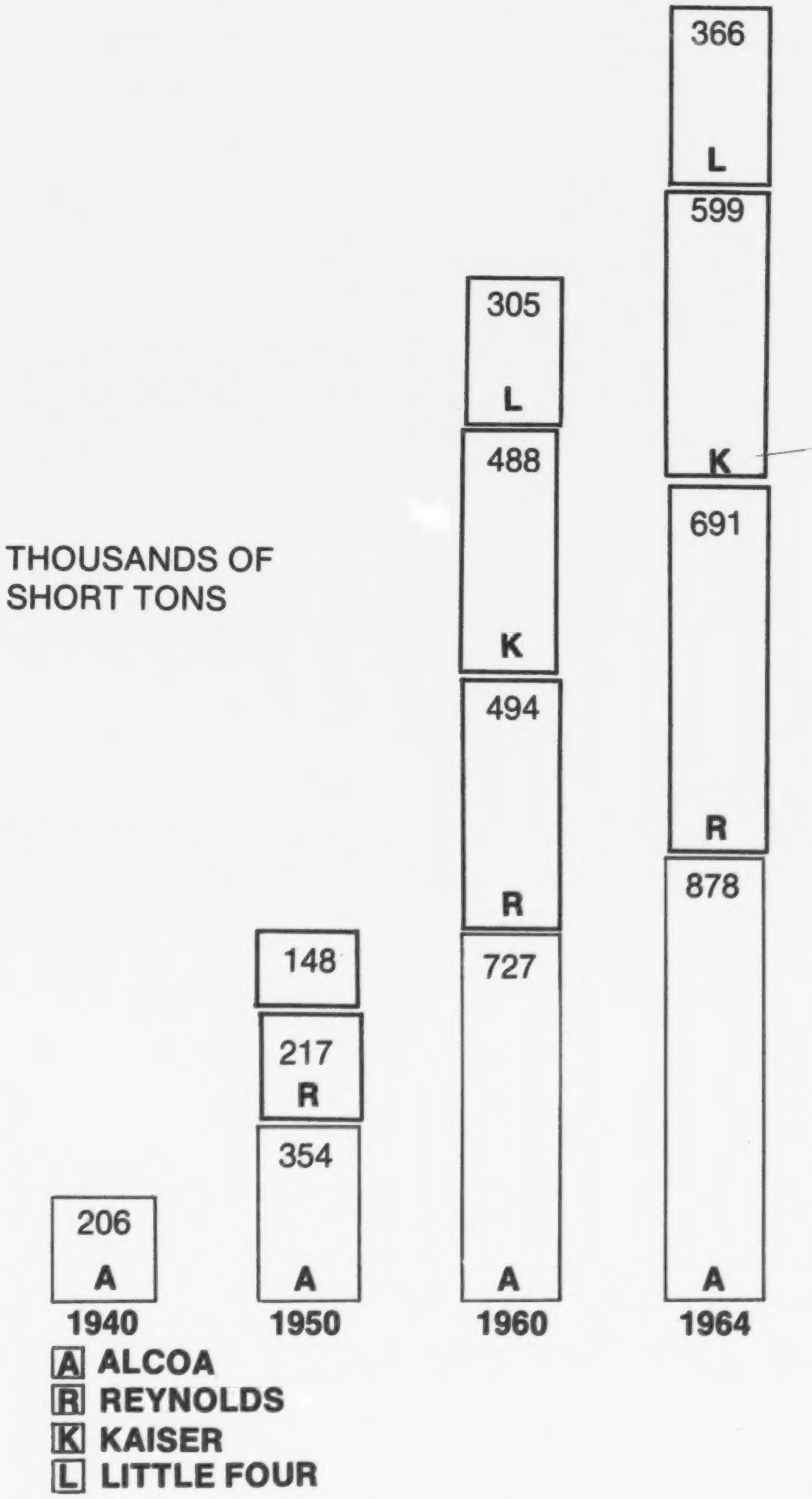
INGOT PRODUCTION (1964 in %)
PRIMARY



FABRICATED
17,000 FIRMS PLUS THE EIGHT ABOVE

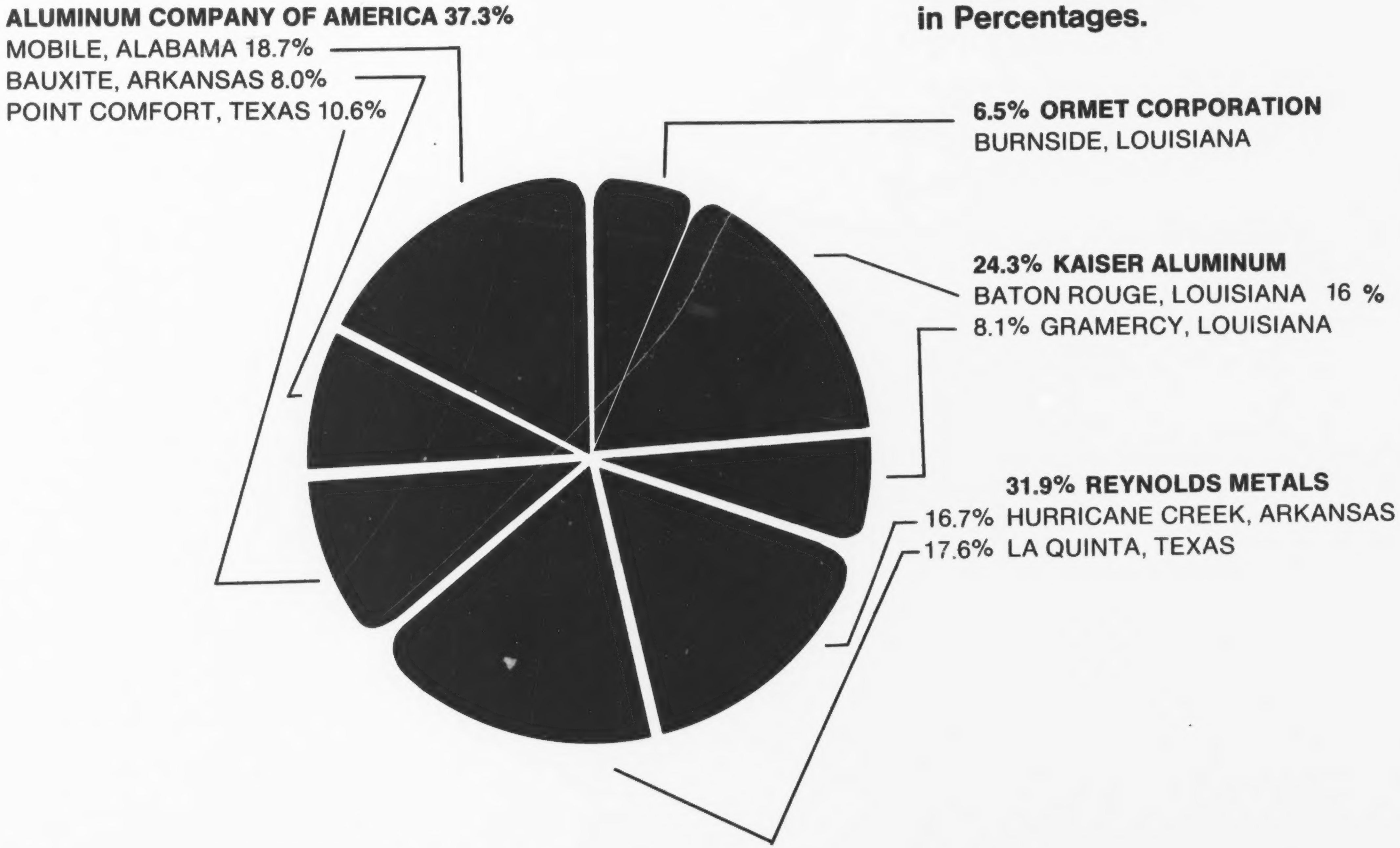
3

Market Concentration, Aluminum Ingot Producers.

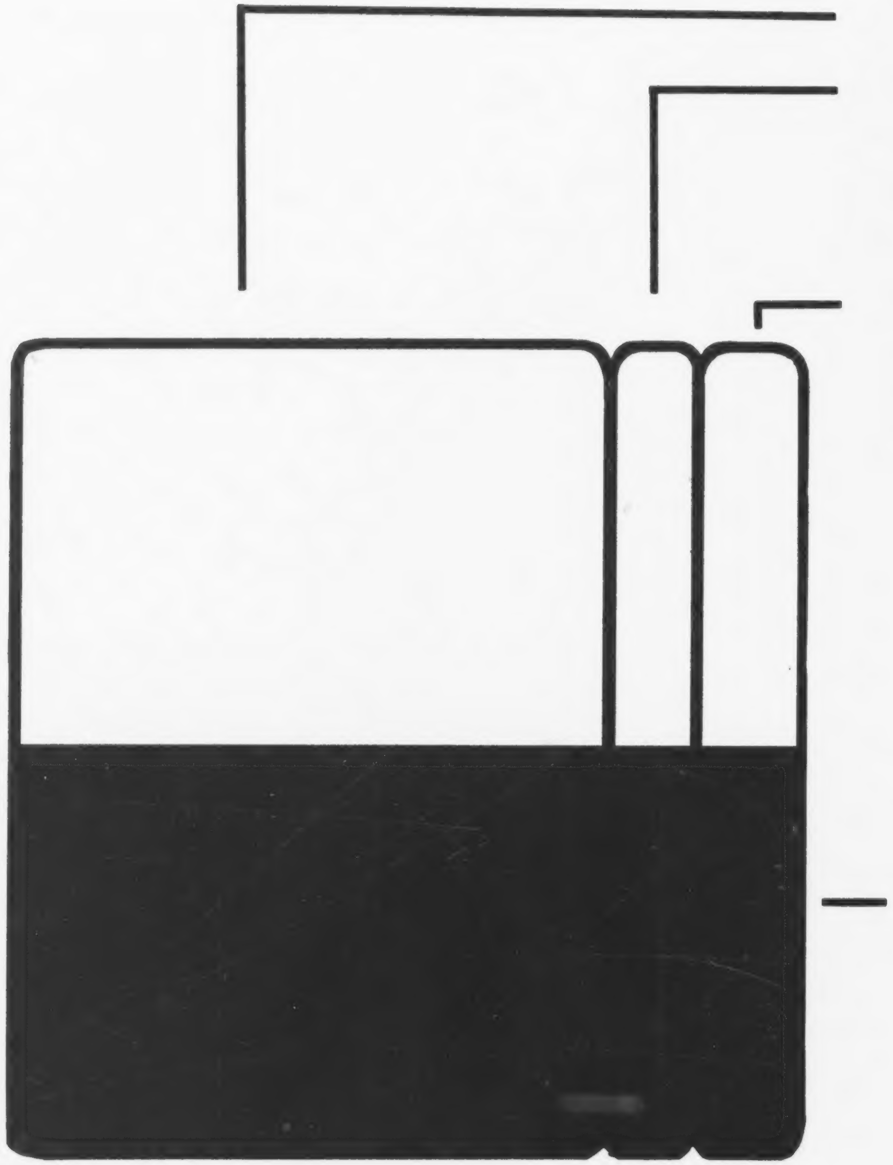


4

Market Concentration, Aluminum Industry for Stage 2, 1963. Capacity of Operating Plants in Percentages.



5 Competing Sources of Aluminum Ingot. Summary of Sellers of Ingot by Major Sources of Supply, 1964.



72% DOMESTIC PRIMARY PRODUCERS

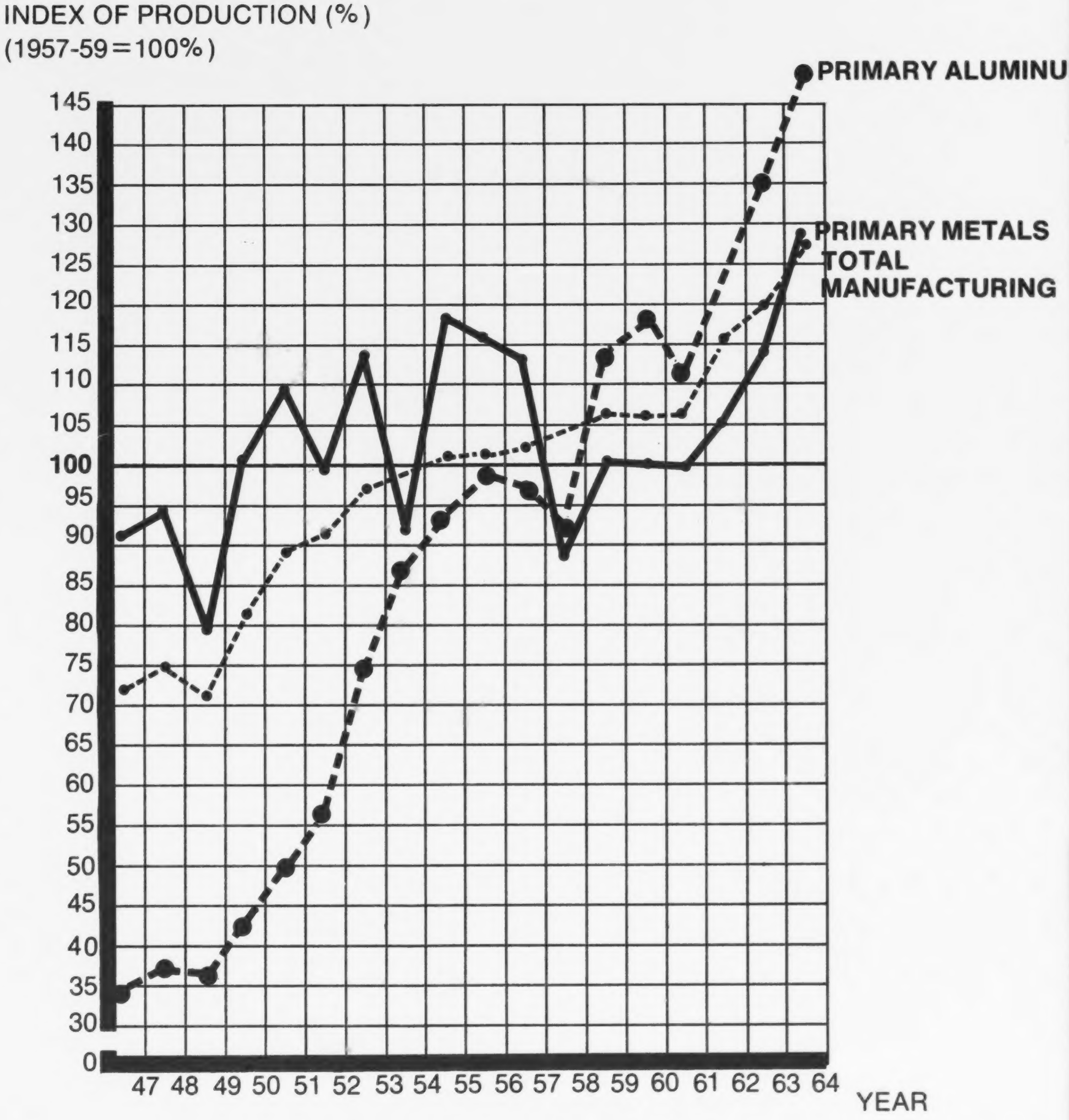
12.5% IMPORTS FROM FOREIGN PRIMARY PRODUCERS
APPROXIMATELY 66% OF CANADA'S ALUMINUM LTD.

SECONDARY SMELTERS 15.5%
92 SMELTERS WHO PRODUCE SECONDARY ALUMINUM FROM SCRAP

ANNUAL TOTAL PURCHASES OF ALUMINUM INGOT

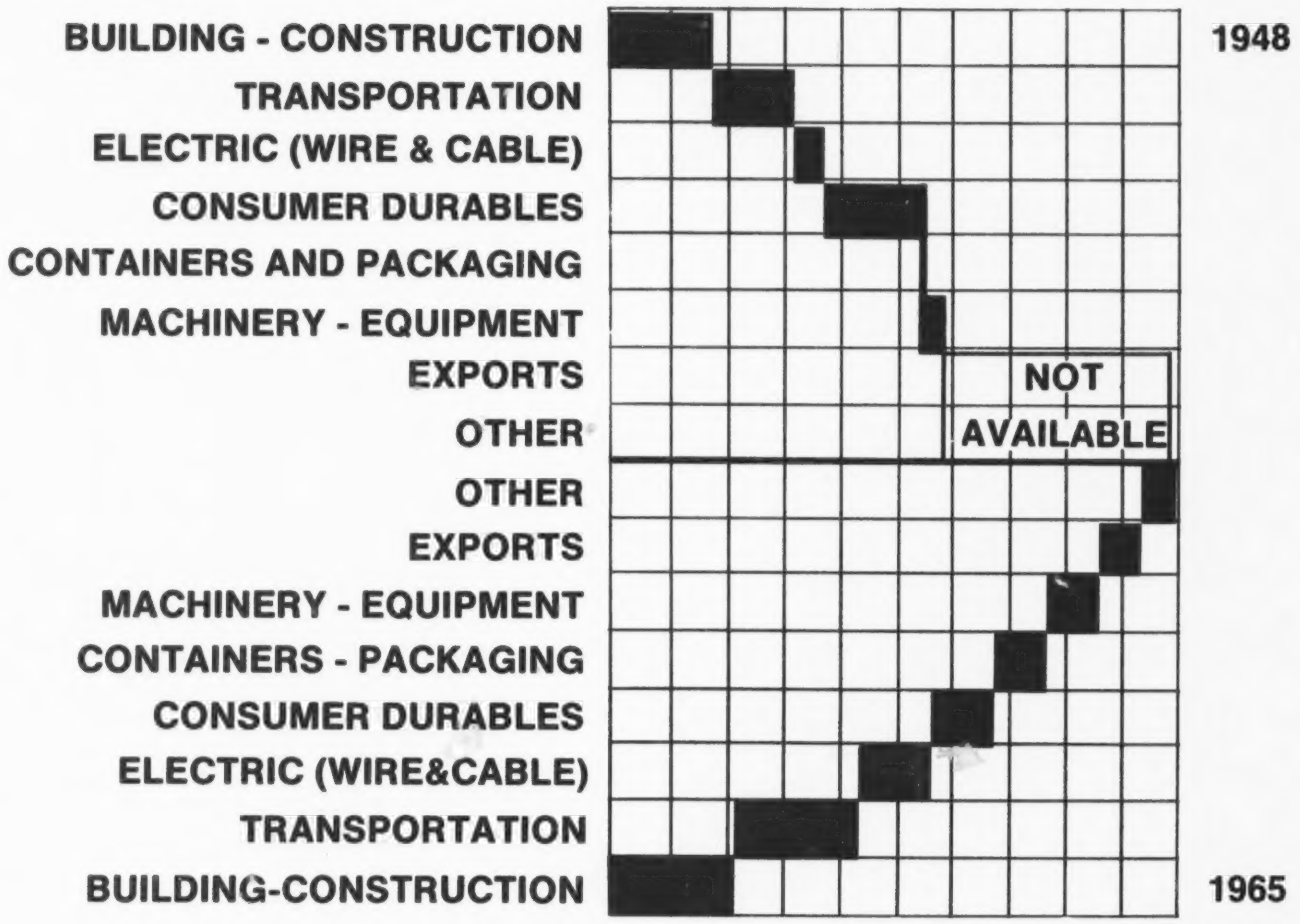
GOVERNMENT STOCKPILE 50%
OF ANNUAL TOTAL PRODUCTION

6 Growth in Commercial Consumption of Aluminum, Manufacturing, and Primary Metals in The U.S., 1947-1964.



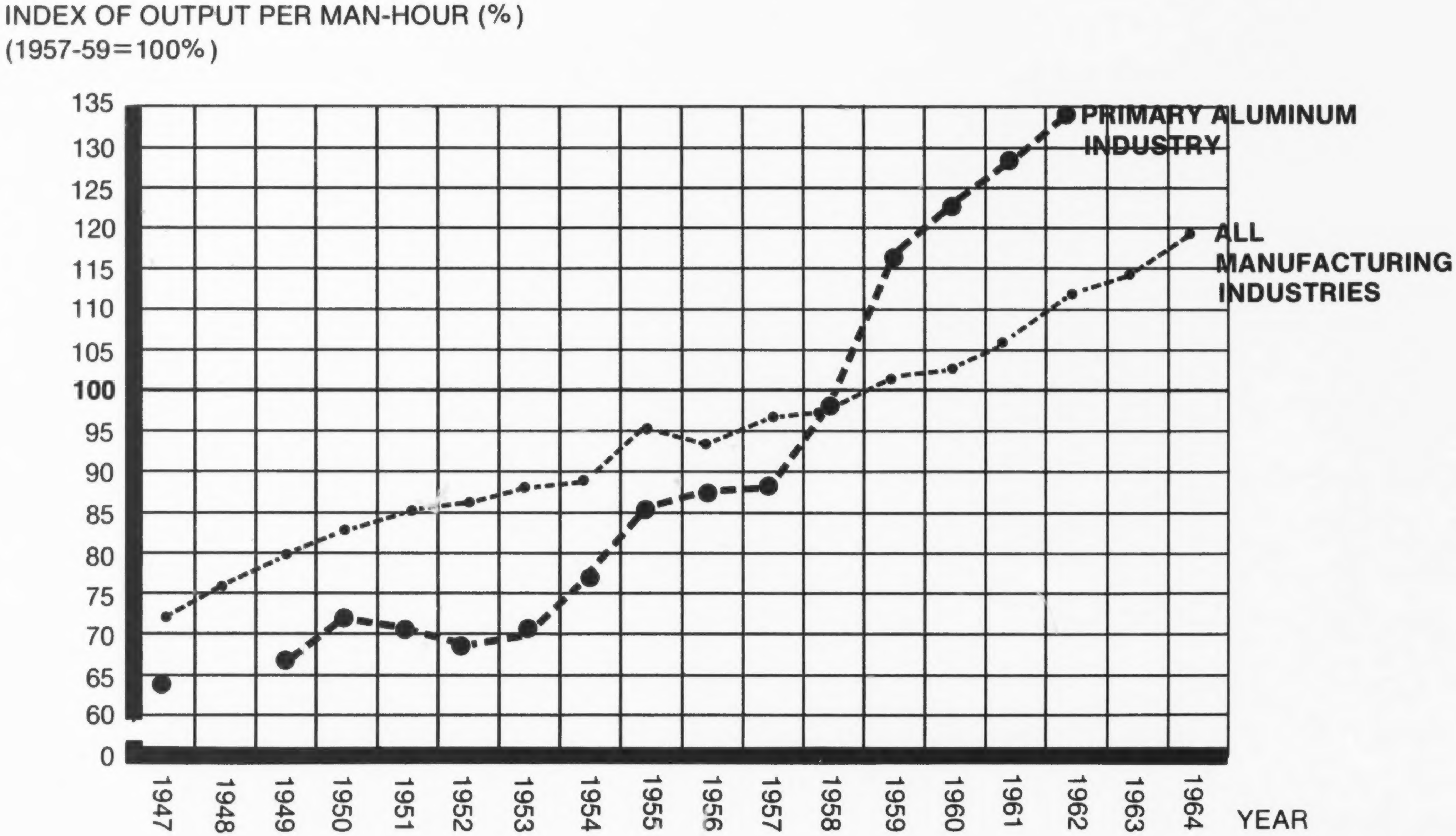
7

The Changing Pattern of Aluminum Consumption by Market 1948 and 1965; Percent of Total Consumption by Various Uses.

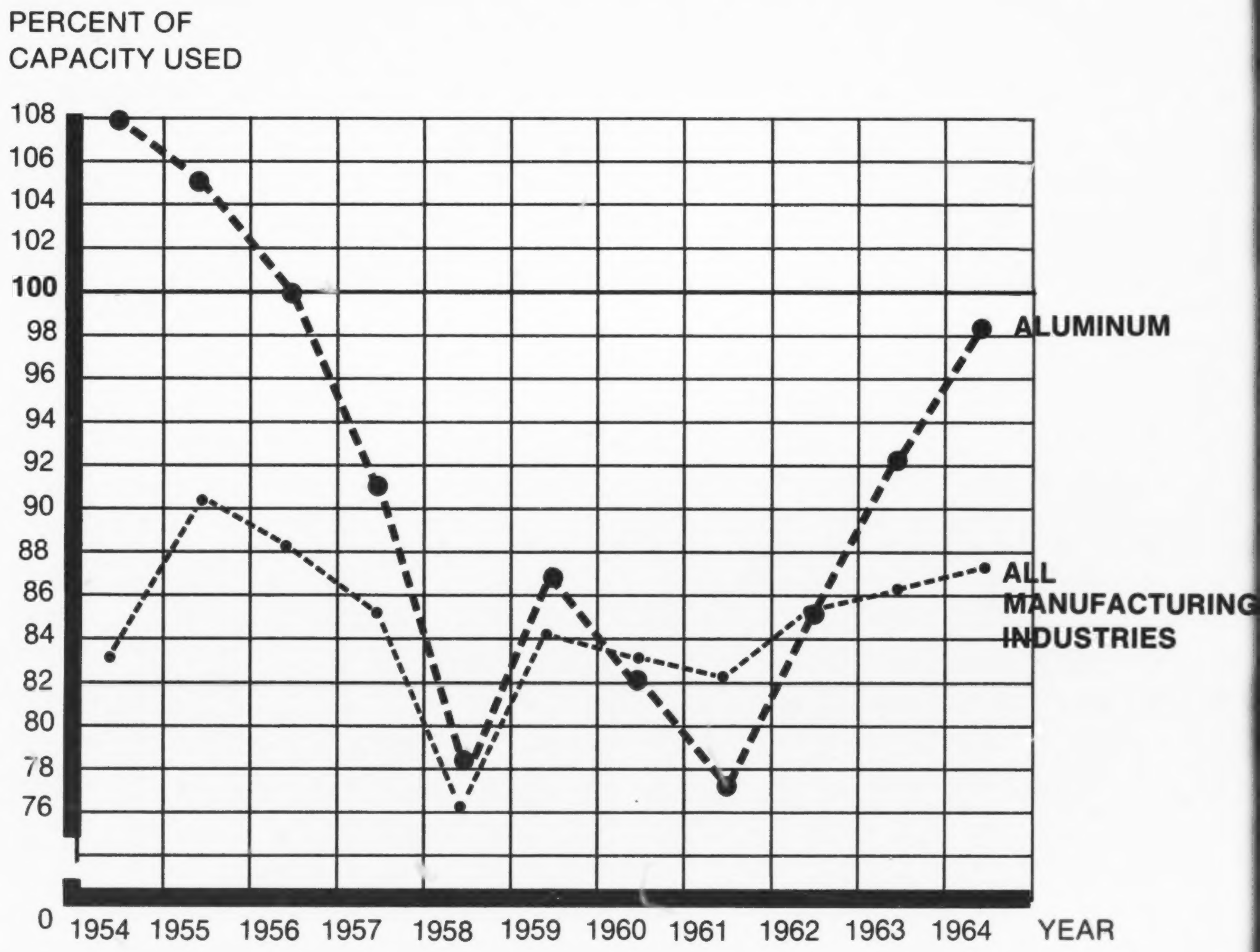


8

Output per man hour for Primary Aluminum and all Manufacturing 1947-1964.

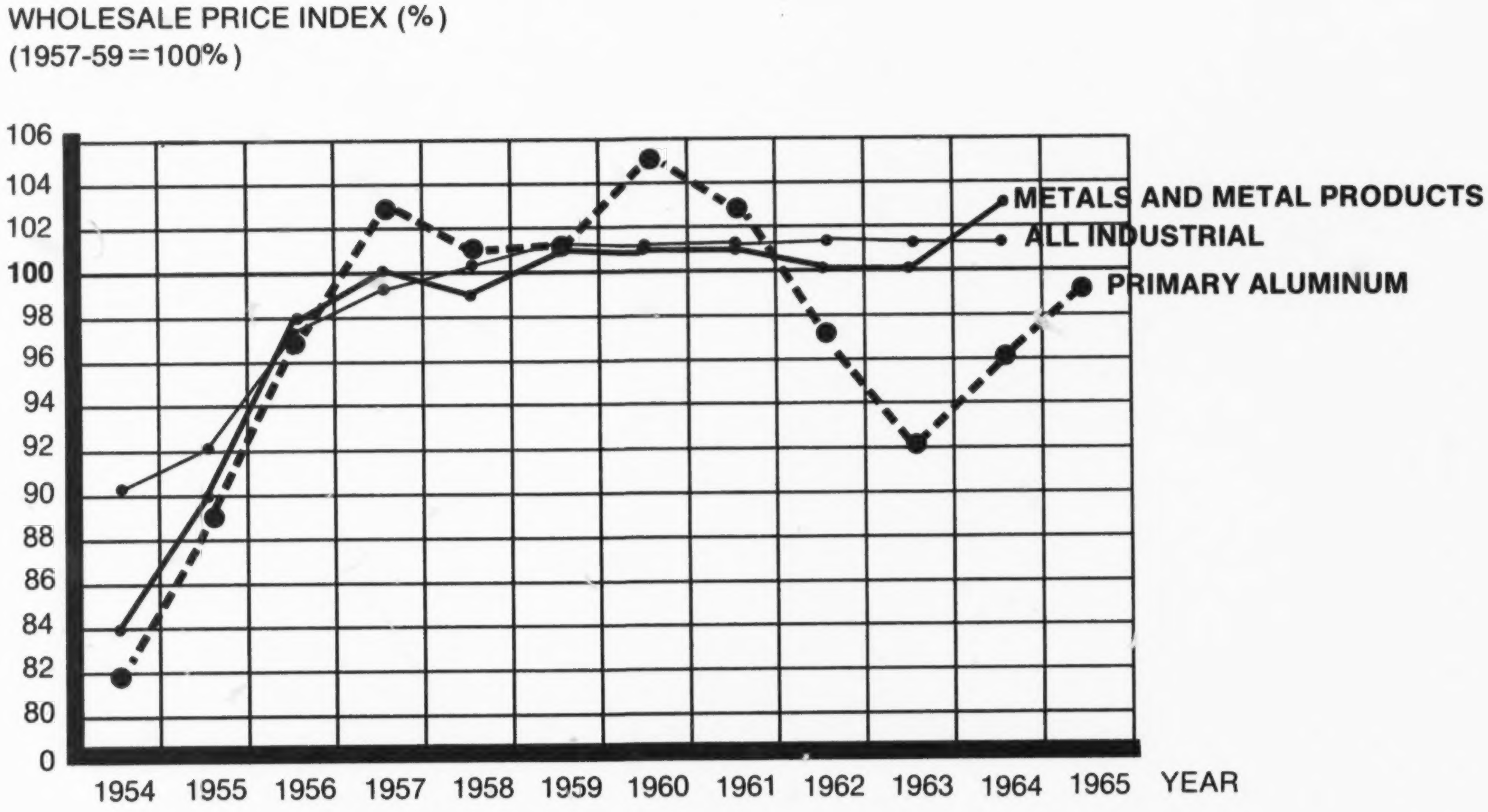


9 Percent of Industry Capacity used. Aluminum Industry Compared with Total Manufacturing.

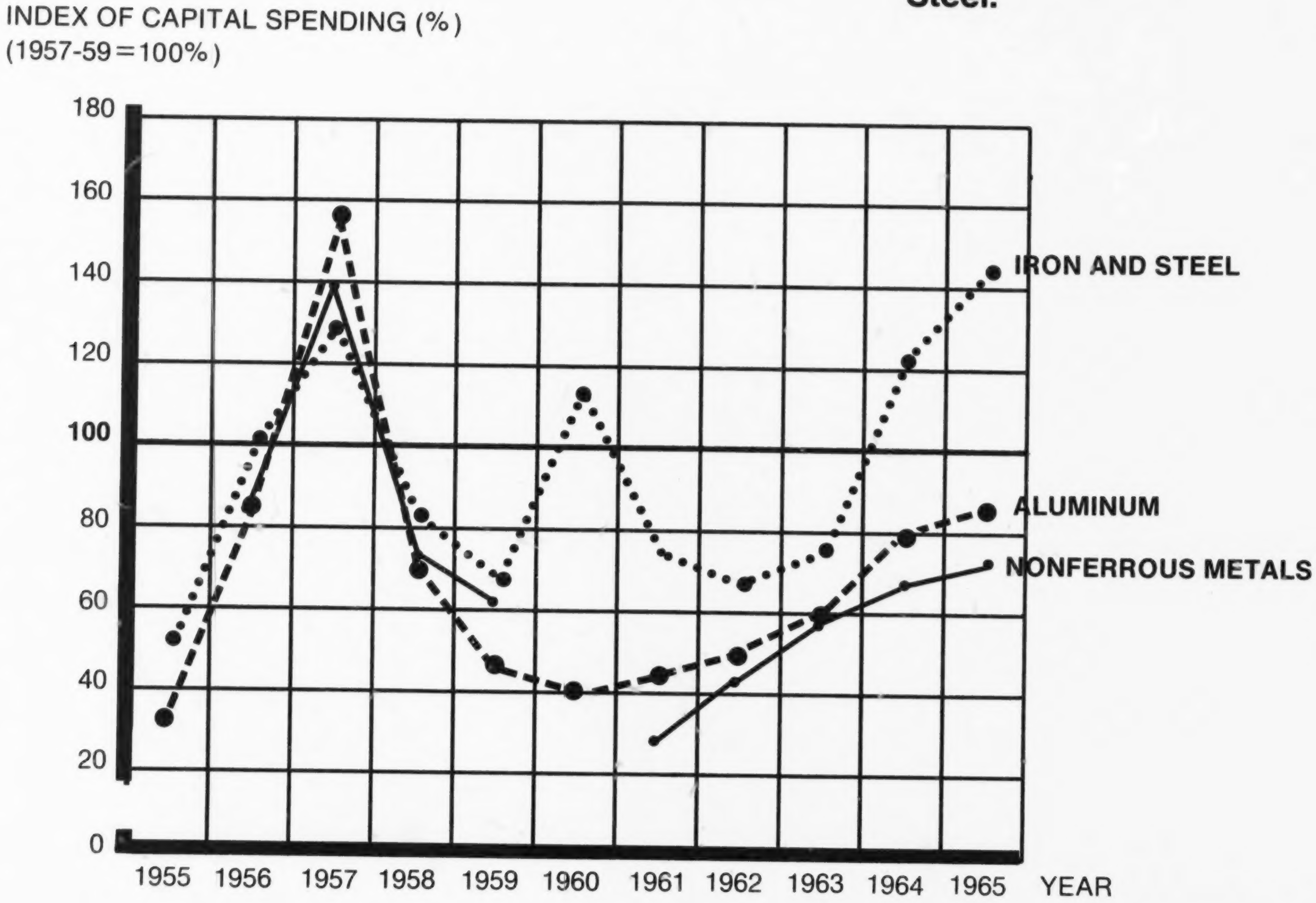


10

Wholesale Price Indexes for Primary Aluminum, for all Industrial Prices, for Metals and Metal Products.

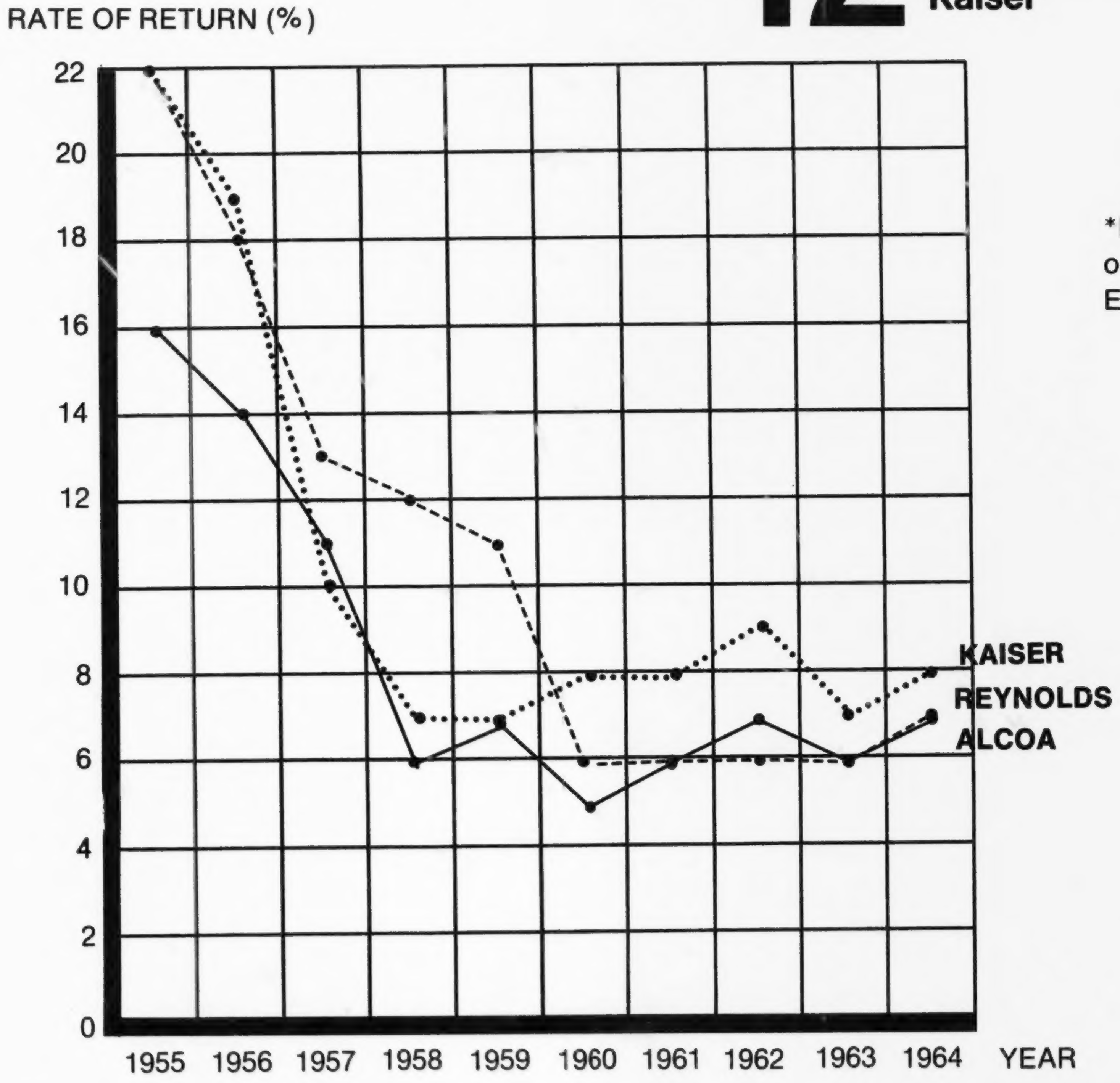


11 Indexes of Capital Spending, Primary Aluminum, Nonferrous Metals, Iron And Steel.



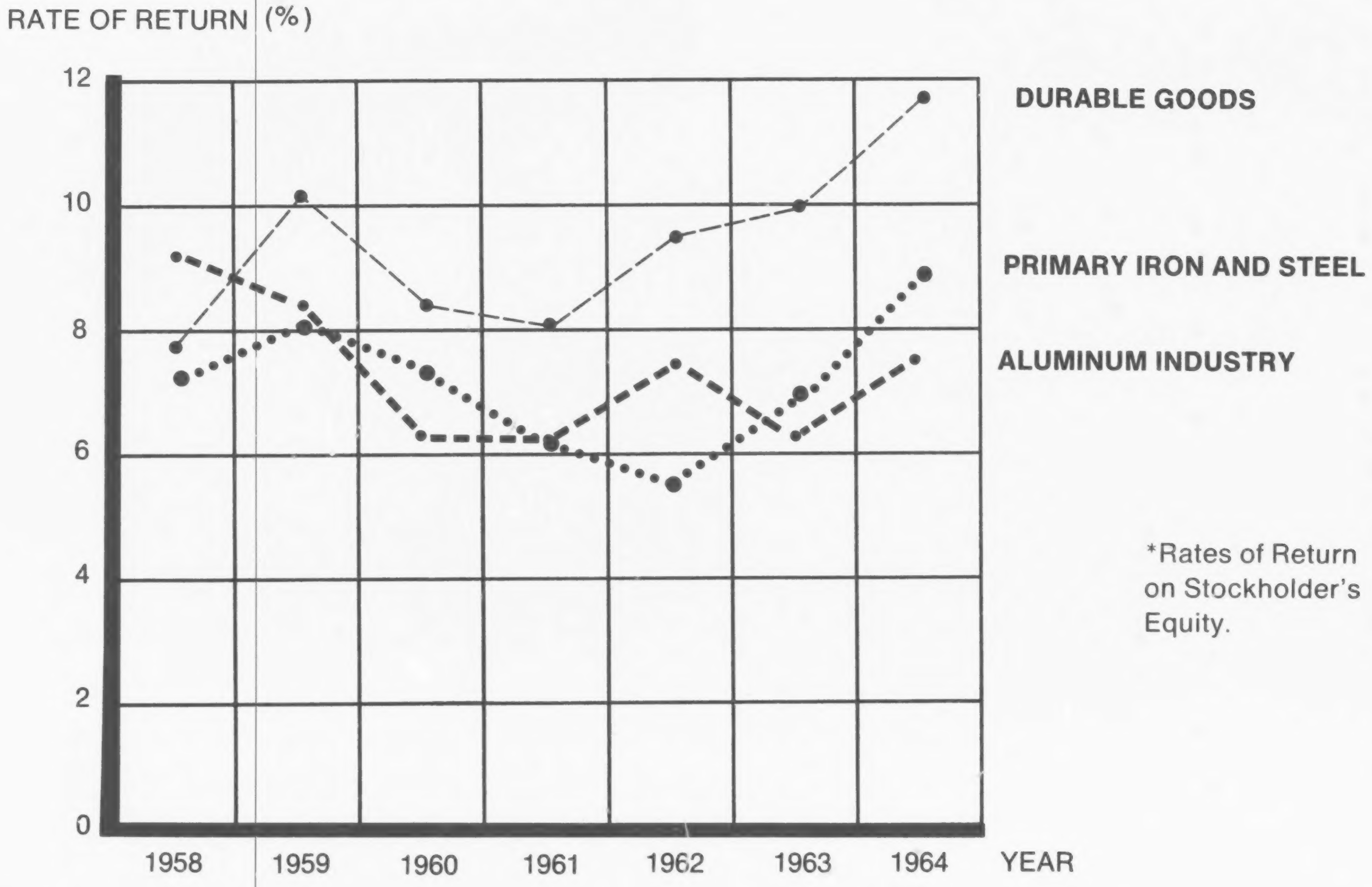
12

Profits, after Taxes, Alcoa, Reynolds, Kaiser*



*Rates of Return on Stockholder's Equity.

13 Profits, after Taxes, in Aluminum Durable Manufacturing and Primary Iron and Steel Industries.*



*Rates of Return on Stockholder's Equity.

14 Primary and Secondary Aluminum Ingot Prices, 1945-1957.

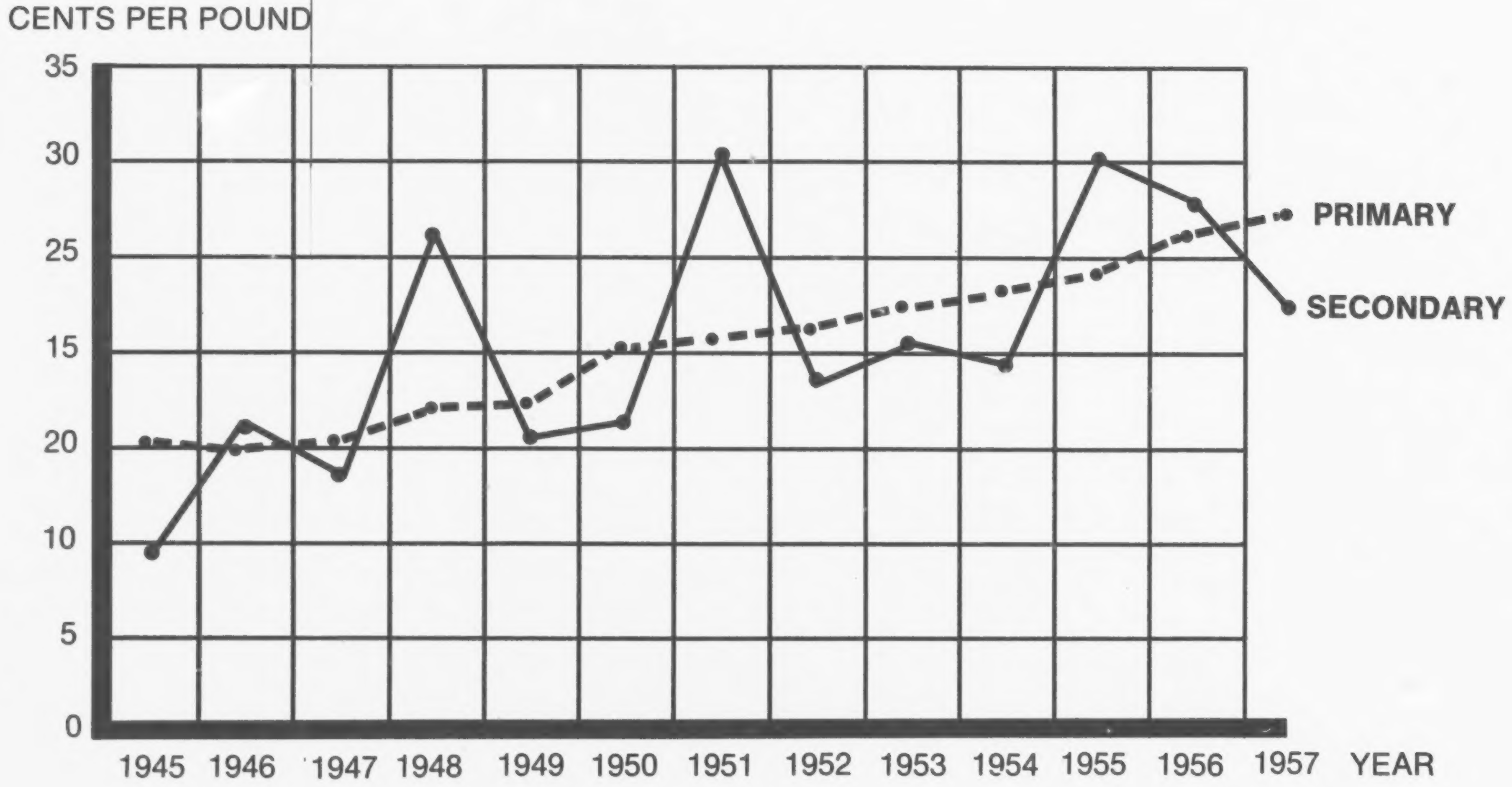


TABLE 2

SUMMARY TABLE OF
MARKET STRUCTURE OF ALUMINUM INDUSTRY

Stages of Production	Concentration	Barriers to Entry	Product Differentiation	Demand Elasticity	Demand Growth
Primary Aluminum Products					
Stage 1: Mining					
Stage 2: Refining Alumina					
Stage 3: Reduction, Primary Aluminum					
Fabricated Aluminum					
Stage 4: Fabrication					
Stage 5: Aluminum Products					

ECON 12
UNIT II
LESSON 8
STUDENT ESSAY AND FACTS ON THE AUTOMOBILE INDUSTRY

THE MARKET STRUCTURE OF THE AUTOMOBILE INDUSTRY

1. TECHNOLOGY

A Mass Production Industry

The automboile industry is a classic example of the workings of mass production. More than fifty years ago, Henry Ford conceived the idea of moving a car chassis through the plant and adding parts, instead of building up one car at a time in a stationary location. The production of 10,000 units of the Model T in 1909, marked the real beginning of quantity production of low-priced cars.

Stages of Production

There are three major stages of production in the manufacture of motor vehicles: design, machinery and assembly. In addition, all of these stages are assisted by research and engineering staffs engaged in finding ways to improve the car and methods of production.[1]

Design

Designing is begun about two years before the model appears on the market. Experimental models are built and subjected to laboratory and road tests. Corrections are made before the designs are releasted to the production departments. The patterns, dies, machine tools, and necessary fixtures are then made.

Machining. Machining of the automotive parts requires extensive foundry equipment as well as special-purpose machine tools. The basic processes are metal cutting, casting, forging, stamping, welding and heat treating. Castings are used to make a number of intricately shaped parts, from the cylinder block to the radiator ornament. Crankshafts, camshafts, gear blanks, connecting rods, valves and steering-gear parts are usually forged from steel. Hundreds of the parts of a vehicle are formed by stamping in presses; these include body parts, fenders, frames, gasoline tanks, fans, wheels, crank cases, rear axle hosings, lamp parts, and dust shields. Many stampings are welded to form the body and its parts. By heat-treating, the cyrstalline structure of steel is changed to obtain the desired properties of hardness, toughness and high strength. All of these form-making operations are physically segregated from the assembly lines.

Assembly. Assembling the more than 15,000 parts that go into a modern automobile is like putting together a giant mechanical jigsaw puzzle. A central scheduling unit programs each car through the four main assembly areas -- body, paint, trim and chassis. Through precisely coordinated organization and split-second timing, parts and sub-assemblies meet on the final line at just the right moment to make each car exactly as ordered. The flow of materials, the gradual build-up of body and chassis, and the final dressing and adjustments are depicted in Figure 1.

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[1] General Motors alone has about 19,000 engineers and scientists engaged in research and engineering. See Alfred P. Sloan, Jr., *My Years with General Motors* (New York: Doubleday and Co., 1964) p. 249.

The guiding principle is to save time by bringing material to the worker instead of having the worker go to the material. Each worker has the small bit of work to do which he is able to perform while the car portion he is working on is being conveyed in front of him. Thus, wasted energy and motion are eliminated and every worker becomes a specialist in doing a small part of the labor. You might find it interesting reading Adam Smith's The Wealth of Nations, in which he described the benefits of specialization in the mass production of the common pin, published in 1776.

Vertical Integration

The auto industry began essentially as an assembly plant operation. Independent supplier firms for the most part manufactured the engine and body parts. As producers began to accumulate capital, the auto industry integrated backwards into the manufacture of its own parts. However, the auto industry is not integrated in the sense that they manufacture all the parts themselves. Rather, automobile companies prefer to maintain "two sources of supply" in order to provide some immunity from total interruption in the supply of any one component part. Automobile manufacturers practice "tapered integration" which means they keep their parts factories operating at predetermined output rates, filling additional supplies through "contract suppliers."

The auto industry has also integrated forward in providing dealer outlets to distribute its product in local communities. Most automobile dealerships are independent businesses operating under sales agreements with auto companies. Under such agreements, the manufacturer agrees to sell almost entirely through the dealer in the specified area. In return for this franchise privilege, automobile producers specify the showroom and repair facilities that their dealer must maintain, as well as set sales quotas. In some instances, they also assist with the capital funds for necessary improvements in the dealer's franchise.

2. SELLER CONCENTRATION

Of the country's major industries, automobile manufacture represents the apex in economic concentration. Since the early 1960's, four companies have accounted for almost 100 per cent of the output of passenger cars. Even this figure does not reveal the full extent of the concentration that exists. In 1965, General Motors produced over half of the cars manufactured in the U.S.; its share in 1965 was 53 per cent, as contrasted with 27.5 per cent for Ford, 15.7 per cent for Chrysler, and 3.7 per cent for American Motors (see Figure 2). Also noteworthy is the tremendous gap in the size of the market share between each of the "Big Three," particularly General Motors, and the smallest firm, American Motors.

In terms of new car registrations, this general relationship is only slightly different when imports are considered. In 1964, General Motors had about 49.1 per cent of U.S. sales. Ford had 26 per cent, Chrysler 13.8 per cent, and American Motors about 4.7 per cent. The remaining 6.4 per cent was divided between Checker Motors, a manufacturer of taxicabs (0.4 per cent) and foreign imports (6.0 per cent).

General Motors is not only the largest auto producer, it is also the largest concern in the United States and the world. Regularly, in the Fortune listing of the 500 largest Industrial Corporations, this company has ranked first. (Table 1) in 1965, its total annual sales were in excess of 20.7 billion dollars, an amount larger than the gross national product of all but a dozen countries in the whole world. Or to look at it another way, the combined output of the 54 smallest members of the United Nations -- almost half the total membership -- barely equals the output of this one American corporation.

As late as 1921, there were 88 firms turning out cars on a commercial basis. Since that time, there has not been a successful new entry into the industry except for the formation of the Chrysler Corporation in 1925. At the same time, the independents' share of the market has steadily declined from approximately thirty-three per cent in 1929 to ten per cent of the market prior to World War II. Although the independents' share of the market rose for a short time to 19.1 per cent in the immediate post-World War II period because of the temporary shortage of new and used cars, the 1950's and 1960's saw the independents dwindle in number one by one, so that today only two firms, American Motors and Checker Motors, remain. (Figures 2 and 3) Just a half century ago, many hundred of firms were engaged at one time or another in the commercial production of passenger cars.

How can we explain the virtual disappearance of the independents in the industry, the rise of the "Big Three:, and in particular the spectacular rise in the position of General Motors? The answer is directly related to changes in conditions for entry and survival in the industry between the early and later periods of the industry's growth. These changes will be discussed in the following section under barriers to entry.

3. BARRIERS TO ENTRY

From the standpoint of the entry problem, the automobile industry can be divided into three periods: (1) the era of phenomenal growth ending in the middle 1920's; (2) the period of maturity with its terminal point the beginning of World War II in 1941; and (3) the post-World War II period from 1941 to the present.

Entry Prior to Middle 1920's -- Era of Rapid Growth

Prior to the early 1920's, entry into automobile production was relatively easy. In the fifteen years between 1906 and 1920, a total of 126 firms entered the industry. New entry in this period was facillitated by two major factors: (1) the rapid and substantial growth in the total market demand for automobile, and (2) the low capital requirement to enter into auto production.

In the early period, demand persistently exceeded the capacity of the industry to produce. New firms could grow without diverting sales from other producers, without disrupting the given pattern of total demand, without fear that established makers would make deliberate efforts to keep them out, and without need to create demand for particular makes through costly expenditures of product differentiation.

Most of the early producers initially made automobiles as an offshoot of an existing enterprise, usually either the manufacture of machinery of some kind, or of vehicles, such as bicycles or carriages. Consequently, there was ordinarily a parent organization that could provide the initial capital, managerial and labor skill. To a very considerable extent, these early automobile factories were predominantly assembly operations. Independent supplier firms made the components, such as radiators, engines, etc. It became possible, therefore, to go into automobile manufacturing with a minimum investment, since the "factory" was merely an assembly plant. Moreover, the financing of production could be handled by buying parts on credit and selling finished cars to dealers for cash, so that very little working capital was required. The new firm, once it had succeeded in putting cars on the market on a commercial basis, stood a good chance og making substantial returns which would provide internal funds for expansion. Returns in the first decade of the century were in many cases little short of fabulous. High profitability, therefore, acted as a stimulus to both entry of new firms and to rapid self-expansion for the newcomers.

The Rise of Ford

Although other manufacturing concerns experimented with the production of low-priced automobiles on a mass production basis, the techniques developed by Henry Ford proved the most successful. The secret of Ford's success was his realization that the first problem was to design a car that was low priced and at the same time suitable for mass consumption. He met these specifications with the Model T of 1908 -- a car which was durable, capable of being used in city or country, easy to operate, and simple and inexpensive to maintain. He and his assistants then went to work on the problem of manufacturing the car cheaply, and in four years of experimentation evolved the moving assembly line. The tremendous economies of scale associated with the method or production permitted Ford to drop the price of the Model T from $950 in 1909 to $290 in 1920. Ford's success was spectacular. By 1920 he was making half the motor vehicles in the world.

The Rise of General Motors

Ford would have continued to cominate the auto market, but for the appearance in the mid-1920's of a plateau in the long-run growth of total de-demand for new cars. New car demand became mainly a function of (1) replacement demand for existing car users and (2) population growth. From about 1923 on, most new car sales had to made to old car owners.

As a result of the "saturation" of automobile demand, a market in used cars developed which handicapped the sale of new vehicles. Price cuts were no longer effective as a means of increasing sales, since new cars were now competing with a large stock of old cars. This opened the door to demand based on factors other than the need for dependable transportation at low cost. Ford's policy was to keep the Model T virtually unchanged year after year to avoid retooling costs and thereby keep price low. In contrast, General Motors originated the idea of model changes to make older cars seem obsolete, and thus stimulate a demand for new cars.

In 1923 a Chevrolet was introduced which sold for about $100 more than the Model T, but which offered new styling, greater speed, better transmission, and so forth. Given the choice between an economic and dependable but rather "old-fashioned" Ford and a more "modern" Chevrolet at a hundred dollars more in price, the public chose the Chevrolet. With the success of the new Chevrolet, Ford's market share fell drastically from over 55 per cent in 1921 to slightly more than one-third in 1926. But in 1930, Ford's share rose to 40 percent after the introduction of the Model A. 1930 was Ford's last year as the country's top producer. In 1931 General Motors took the lead with 43 per cent of the domestic production of atuos and has kept the leading position ever since.

General Motor's spectacular growth can be attributed to several factors: Through its partnership with DuPont Company, it had ready access to capital and credit. DuPont's financial backing enabled G.M. to spend larger sums on advertising and sales efforts to build up strong consumer loyalty to its products, and to make possible more frequent model and design changes. A strong dealer organization, embracing the largest number of dealerships of any automobile company in the world was established. The prices of General Motors used cars were consistently higher than comparable models of its competitors, a factor which greatly aided dealers in swelling the sales of new General Motors cars. Finally, by organizing the General Motors Acceptance Corporation, it assisted dealers in financing the purchase of new cars.

The Rise of Chrysler

The second firm to cut into Ford's low-priced car market was Chrysler Corporation. Chrylser purchased the Dodge Brothers Manufacturing Company in 1928. The acquisition of so powerful a dealer organization and large-scale manufacturing facilities enabled Chrysler to introduce the low-priced Plymouth in 1928 as a competitor of both Ford and Chevrolet. Chrysler inaugurated an all-out campaign to promote its low-priced Plymouth. Its advertising budget far exceeded everyone else's, except General Motors'. From 1928 through 1931, its share of the market stayed at about eight per cent, but by 1933, it was selling one-fourth of the new cars in the country, taking second place in the industry from Ford. The failure of any of the other independents to duplicate Chrysler's achievement was due to their lack of the resources to put on an advertising campaigns, and to wait several years for acceptance.

New Barriers to Entry. The rise of the "Big Three," raised the barriers to entry in a number of important ways. First, the financial requirements for entering into automobile production (the purdens of re-styling and advertising) were now formidable. Although automobile production remained substantially an assembly operation during this period, the great growth in both plant and firm size of Ford, General Motors and Chrysler made the cost of fixed investment alone enormous.

Total demand for new cars was growing at roughly the same rate as the total population. Assuming a potential firm could meet initial financial requirements, it had also to calculate its chances for staying in business. That meant that the newcomer, to succeed, would have to capture and hold a sizeable market in order to reduce the market shares held by established firms. It was highly unlikely that a newcomer could break the wall of consumer loyalty to the well established "Big Three," since their extensive advertising, and their networks of franchised dealers throughout the country to promote sales and reinforce loyalty gave them a tremendous competitive advantage over any newcomer.

Another important competitive disadvantage of a small newcomer was the economics of scale enjoyed by the "Big Three." Even if they eventually achieved sufficient sales volume, they faced the possible hazard that the established sellers would resort to sharp price reductions aimed directly at the newcomer. The larger the plant and firm, the lower the cost per car.

The Depression Years. The depression years of the 1930's brought a production drop, from the peak of more than five million vehicles in 1929 to a low of just over one million in 1932. Output climbed fairly steadily thereafter, but the figure for 1929 was not surpassed in peacetime for more than twenty years. The industry's response to the depression was to cut costs and to intensify sales efforts. Although the Big Three rode out the storm with considerable difficulty, they suffered far less loss than their smaller competitors, who by and large went under. Between 1929 to 1939, the independents' share of the market dropped from 25 per cent to ten per cent, and many famous names, like Pierce Arrow, Stutz, and Franklin disappeared altogether.

New Entry Following World War II

The return of peace following World War II brought a tremendous growth in demand for automobiles, and several newcomers were attracted into the industry.

Entry of Kaiser-Frazer Corporation. The most promising of these efforts was made by Kaiser-Frazer Corporation in 1946; which entered the industry under four unusually favorable circumstances: (1) a great shortage in the supply of new cars because of the suspension of car production during World War II, (2) the opportunity to purchase war plants from the Federal Government usuable for car production at a relatively low cost, (3) experienced executives with remarkable entrepreneurial skill and (4) automobile industry connections through the Graham-Paige organization that it inherited. The Kaiser venture prospered only until the automobile market was back on a regular peacetime basis. By 1954, the Kaiser automotive industry was absorbed by Willys Motors, Inc., and was forced to withdraw from the production and sales of autos.

Thus, although the Kaiser Corporation entered the automobiles industry under the most favorable circumstances, and performed a remarkable feat of engineering and enterprise to exploit the favorable short-run factors, it could not remain in business when demand conditions returned to normal because of: (1) the difficulty of raising private capital to finance plant improvement;[2] (2) the inability to compete in annual model changes (3) the low trade-in value of the Kaiser car, and (4) the difficulty of attracting dealers to retail its cars because of the unprofitable dealerships.

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[2] In 1949, for example, Kaiser was forced to borrow $44 million from the Federal Government's Reconstruction Finance Corporation, when the private capital market declined to finance its capital needs.

TABLE I

FORTUNE DIRECTORY'S RANKING OF "BIG FOUR" AUTOMOBILE COMPANIES, 1964

Comparison of Sales, Assets, Net Profits, Invested Capital, and Return on Sales and Stockholder's Equity

COMPANY	Rank by SALES	SALES (in $1000's)	ASSETS (in $1000's)	NET PROFITS (in 1000's)	INVESTED CAPITAL (in $1000's)	Profit As	Per cent of
						Sales	Stockholder's Equity
General Motors	1	16,997,044	11,245299	1,734,782	7,599,015	10.2	22.8
Ford Motor	3	9,670,766	6,459,295	505,642	4,011,022	5.2	12.6
Chrysler	6	4,287,348	2,420,774	213,770	1,122,149	5.0	19.1
American Motors	55	1,009,471	420,698	26,227	278,718	2.6	9.4
Industrial Median for Motor Vehicles and Parts **						4.5	12.5
All Industry Median *						5.0	10.5

* Fortune Directory ranks the 500 largest corporations in order of value of sales.
** Includes only companies in the 500 largest corporations.

Source: "The Fortune Directory," Fortune, July 1965, pp. 149-167.

TABLE 2

Summary Description of Barriers to Entry in the Automobile Manufacturing Ind.

1. ECONOMICES OF SCALE

(This table summarizes the reasons for economices of scale in car manufacture -- cost per car declines for higher and higher levels of output)

PRODUCTION	ADVERTISING & PROMOTION	DEALERS
A. Assembly Line Output 1. Optimum-sized assembly plant requires a production level between 300,000 to 600,000 units per year -- approximately 3.2 to 6.4 per cent of 1965 output. 2. Large volume production, however, permits distribution of assembly plants around country, & savings in costs of transporting finished cars. B. Manufacture of Bodies and Engines. 1. Annual tool and die costs: Frequent model changes require large annual tool and die costs; only companies with a large volume of production can keep these unit costs low. 2. High volume required for automation of many engine and body operations (e.g. one factory can produce most of motor blocks needed for company. 3. Big automobile producers obtain special discounts on buying materials & parts.	A. Advertising The auto industry is the nation's largest advertiser. 1. GM ranks 1st, Ford & Chrysler 2nd, in terms of size of advertising budget. 2. In 1963, the 4 auto companies spent the following advertising outlays in six major media: GM $121.0 million Ford 74.0 " Chrysler 50.0 " AmMot. 18.5 " B. Other Forms of Promotion In addition to advertising the auto companies spend an almost equal amount on other promotional outlays, such as racing programs, fairs, prizes, etc. In 1963 these outlays were as follows: GM $112 million Ford 101 " Chrysler 30 " C. High annual promotion costs discourage new entry for 2 reasons: (1) financially unable to match big sums. (2) Even if they could, they would face large losses for many years because initial small volume of production would result in high unit costs.	Successful marketing of all but high-priced cars requires a minimum of 2500-3000 dealers per make of car. To support this number of dealer outlets and keep them on a profitable basis requires sale of a minimum number of 100,000 to 150,000 units per line per year. New firms find it difficult to obtain and support necessary number of dealers because of (1) small volume of sales in initial years of operation, and (2) much of dealer's income comes from servicing cars already on the road. The "Big Three" have a decided advantage over the independents in the number of dealers they can support. As of Jan. 1, 1964, net dealer outlets by company were as follows: GM 13,745 Ford 7,668 Chrysler 5,980 Am.Mot. 3,100 Studebaker 1,832 The larger the auto firm, the more control it has over dealers in terms of standards of show room, repair facilities, quotas, etc.

TABLE 3

Summary Description of Barriers to Entry in the Automobile Manufacturing Industry
2. PRODUCT DIFFERENTIATION
(This table summarizes ways product differentiation creates barriers to entry in auto manufacturing.)

Advertising & promotion	Well-Diversified Product Line	Initial Cost Disadvantage	Resale Value of Used Cars
Because of customer loyalty to the "Big Three," a new firm would need to spend more on advertising and sales promotion than the going firms, to convince people to prefer its model over others. Furthermore, total cost of a successful advertising campaign is high, & does not increase proportionately to sales. A new firm would pay more or as much for a total advertising campaign but would not sell as many cars. Advertising cost per car would, therefore, be higher for a new firm.	Firms must maintain a well-diversified product line. Currently, the "Big Three" have differentiated their product into four loosely defined price classes: 1. low $2,000: 2400 2. low to med. 2,500- 3000 3. Med.to high 3,200 -4000 4. High 4,400 -7500 For efficient production, a new entrant must produce 10 to 20 per cent of low price market and 30 to 60 per cent of upper middle price market. Based on the experience of Kaiser Motors, who discontinued production in 1963, independents with limited lines cannot service. Today, American Motors, which has concentrated in low-priced cars, is facing severe losses as consumer tastes have shifted to higher priced luxury models.	To attain an efficient-sized production volume in each product line, entrant must either: 1. sell at a lower price 2. or increase sales promotion. This means a new firm would expect to lose $200 or more billion a year until he builds up sufficient volume of sales to reduce unit costs. This may take up to 10 years to accomplish.	Because of brandlloyalty & greater consumer confidence in older firms, there is less depreciation in trade-in value for cars produced by the "Big Three" GM has generally the lowest depreciation. The smaller producers take the largest loss in value. To win public acceptance of their models, and to sell cars of new producers, dealers have to offer large discounts or high value on trade-ins.

TABLE 4

Summary Description of Barriers to Entry in the Automobile Manufacturing Industry

3. CAPITAL REQUIREMENTS

(This Table summarizes initial investment costs of going into car manufacturing, and year-toyear additional investment costs).

INITIAL CAPITAL COSTS	CAPITAL OUTLAY FOR TOOLING	CAPITAL OUTLAY FOR NEW PLANT AND EQUIPMENT	CAPITAL OUTLAY FOR ESTABLISHING A SYSTEM OF DEALERS & DISTRIBUTORS
1. UC Prof. Joe Bain's estimates: An efficient-sized operation would require an initial investment of from $250 to $500 plus at least $150 million for "break-in" losses. 2. Ex-pres. of Am. Motors' Romney - estimated that a new company with an output of 250,000 cars per year would require $576 million in 1958 prices--including 5 year losses to enter. 3. Difficulty of Raising Initial Capital funds. Bankers and investment houses are reluctant to participate in financing of new auto concerns. Kaiser financed entry in 1946 because of (1) capital resources and (2) a timely loan from the RFC Kaiser's difficulty in financing 1949 model was one reason it was forced out of the business.	Tooling for new models constitutes a major capital expenditure of the auto industry each year. In 1964, expenditures of the "Big Three" for special tools dies, jigs, etc. were $1,237 billion. These special tools are amortized over relatively short periods of time (1 year) because of rapid changes in automobile styling and design. Amortization charges for special tools for the "Big Three" in 1964 totalled $921 million.	There is substantial annual investment in plant for replacement and modernization. In addition, growth in demand for autos has required outlays for new capitacity. In 1965, expenditures of the "Big Three" for new plant and equipment was as follows: GM $1,250 million Ford 635 " Chrys. 500 " Approximately 51 per cent of the funds were for expansion of capacity and 49 per cent for replacement and modernization.	High initial costs are involved in establishing a system of dealers and distribors. According to Romney's estimate, this would require $326.2 million to be distributed as follows: $262.5 million for 3500 domestic dealers $18.7 million for 350 Canadian dealers $45.0 million for 3000 Export distributors. Further capital outlays are frequently necessary to rebuild an existing dealer system. For example, in 1962, Chrysler found it necessary to rejuvenate its dealers outlets, and invested nearly $100 million on this program alone.

TABLE 5

REASONS FOR PRODUCT DIFFERENTIATION IN THE AUTOMOBILE INDUSTRY

THE NATURE OF THE PRODUCT	ANNUAL MODEL CHANGES	ADVERTISING	SYSTEM OF FRANCHISED DEALERS
The automobile is inherently a differentiated product satisfying a wide range of consumer wants: reliability, economy of operation, speed, prestige, etc. In 1964, for example, the Big Three offered more than 400 varieties to choose from. Combined with variations in transmissions, seating accommodations runs to many millions. Despite this large number of different choices, "different" cars made by the same firm have many common components. The real "Difference" in cars is less striking than consumers realize.	The primary objective of annual model changes is to make the consumer aware that this year's model is identifiably different -- from last year's model and to persuade him through psychological suggestion to turn in his old model for a new car. This attempt to hasten obsolescence is called "planned obsolescence. In the 1950's, differentiation was achieved more by means of eye-catching eccentricities of adornment or configuration. Since the 1960's, however, auto makers tend to imitate one another's srying and differentiate their cars in less obtrusive or more functional details. Similarities usually are more striking than differences.	Advertising promotes product differentiation in two respects: 1. by building consumer loyalty to a given make car thro stress on a firm's reputation and reliability. 2. by creating an image that it is "smart" "modern" a sign of affluence to own a car. If a new model is a "status symbol", the old model is different from the new, and the difference helps promote the sale of new models.	A national system of franchised dealers fosters product differentiation in two ways: 1. by advertising and promoting a particular make car locally and 2. by providing specialized repair servicing for each car make. The degree of success in differentiation is a function of the strength and size of the dealer system.

TABLE 6
FACTORS INFLUENCING DEMAND FOR NEW AUTOS

1 DISPOSABLE INCOME	2 PRICES OF NEW AND USED CARS	3 SCRAPPING OLD CARS	6 POPULATION GROWTH
1. Family income is the main determinant of auto demand.	Price is an important determinant of demand but less important than income.	The replacement demand for junked cars is the backbone of the new car market.	The rate of population growth is an important facgor influencing the demand for cars.
2. Auto sales are highly affected by changes in general business conditions. When the economy is buoyant, the proportion of the consumer income spent for cars expands, and when it is depressed, the proportion of income spent contracts. The percentage of disposable income spent on autos was 5 per cent in 1961 (a depressed year), as compared with 6 1/2 per cent in 1965, when the economy was booming.	Price elasticity is estimated to range between 1.2 and 1.5. New car prices since 1960 have been steady or declining while used-car prices have risen more than 20 per cent. In prosperous times, price is aless important factor than in depression periods. In 1964, for example, although the price of the basic car remained steady, consumers have spent more for the cars, trading up to larger, better equipped, and more expensive cars.	Since 1955, the scrappage about 7.5 per cent of total cars, but the rate fluctuates with the business cycle. Because of the steady increase in the number of cars sold in the past decade, scrappage has increased from 1955-60 average of 4 million units a year to 5.5 million cars will be scrapped in 1966.	Of particular importance is (1) the entry of young adults into the auto market and (2) the growth of new families. Young people are coming of driving age at the rate of more than 3 million a year. Although they mostly buy used cars, they indirectly create a demand for new cars by: (1) contributing to the high rate of multi-car ownership in the country, and (2) keeping the price of used cars high in relation to new cars, thus enhancing the trade-in value of older cars. New families are expected to increase from 13.6 million units in 1964 to 17.1 million in 1970.

TABLE 6A (continued)
FACTORS INFLUENCING DEMAND FOR NEW AUTOS

4 AVAILABILITY AND TERMS OF CREDIT	5 POPULATION SHIFTS	7 MODEL CHANGES	8 CONSUMER CONFIDENCE
Because of the magnitude of expenditures involved for a new automobile, the average consumer is usually not in a position to buy a new car unless credit is available at favorable terms.	The recent shift of the population to suburbia has been an important factor in increasing the number and proportion of households owning two or more cars.	Annual model changes, combined with large-scale advertising campaigns, are an important factor in compelling the consumer to replace their cars more frequently.	The close relationship between demand, personal income and consumer confidence in his earning ability in the immediate future is best demonstrated by the four year boom in the auto industry during the years 1961-1965. During this period, the U.S. economy experienced one of the largest peace-time expansions, with personal income and high consumer confidence in the economy's continued growth have allowed auto sales to reach an all-time high.
Consumer auto credit for purchase of cars has tripled in the past decade from $9.8 billion in 1954 to $27.5 billion in mid-1965.	This trend is expected to continue at least through the 1970's.	Consumer tastes are continually changing, influenced by the size of his income as well as many other factors, including psychic.	
		In the mid-1950's the consumer preferred extreme ostentation; in the early 1960's, an economy car; in the mid 1960's he has turned back to luxury.	

TABLE 7

DISTRIBUTION OF NEW PASSENGER CAR OUTPUT BY PRICE LINES AND IMPORTS, 1960-1965
(in per cent)

CATEGORY	1960	1961	1962	1963	1964	1965
Standards	68%	60%	56%	59%	58%	53%
Compacts	24	31	31	28	19	13
Sport Type Compacts	(1)	2	3	3	4	9
Intermediate	---	----	5	5	15	19
Imports	8	7	5	5	5	6

(1) Less than 1 per cent

Source: U.S. Department of Commerce, Survey of Current Business, October 1965, p.6.

TABLE 8
ANALYSIS OF COST OF OPERATIONS OF 4 MAJOR U.S. AUTO PRODUCERS, 1964
(in per cent)

COST OF OPERATIONS	General Motors	Ford	Chrysler	American Motors
Net Sales[1]	100.00%	100.00%	100.00%	100.00%
Cost of Goods Sold	73.27	79.40	79.40	85.52
Selling, Gen. Adm. Expense	4.77	6.62	11.25	10.15
Depreciation and obsclescence	2.91	2.51		1.25
Employee retirement and pension plan	o.68	1.28		
Operating Profit	18.36	10.19	9.35	3.09
Other Income	1.14	.07	.51	1.23
Total Income	19.50	10.26	9.86	4.32
Other Income	.18	—	.46	.18
Net Income Before Taxes	19.32	10.26	9.40	4.14
Income Taxes and Surtax	9.11	4.99	4.41	1.50
Minority Interest		.04		
Net Income	10.21	5.23	4.99	2.60

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[1] After deducting Federal excise taxes.

Source: Moody's Industrial Manual, June 1965.

TABLE 9

CORPORATION EXPENDITURES FOR ADVERTISING COMPARED WITH RECEIPTS, BY INDUSTRY, 1962

(in billions of dollars)

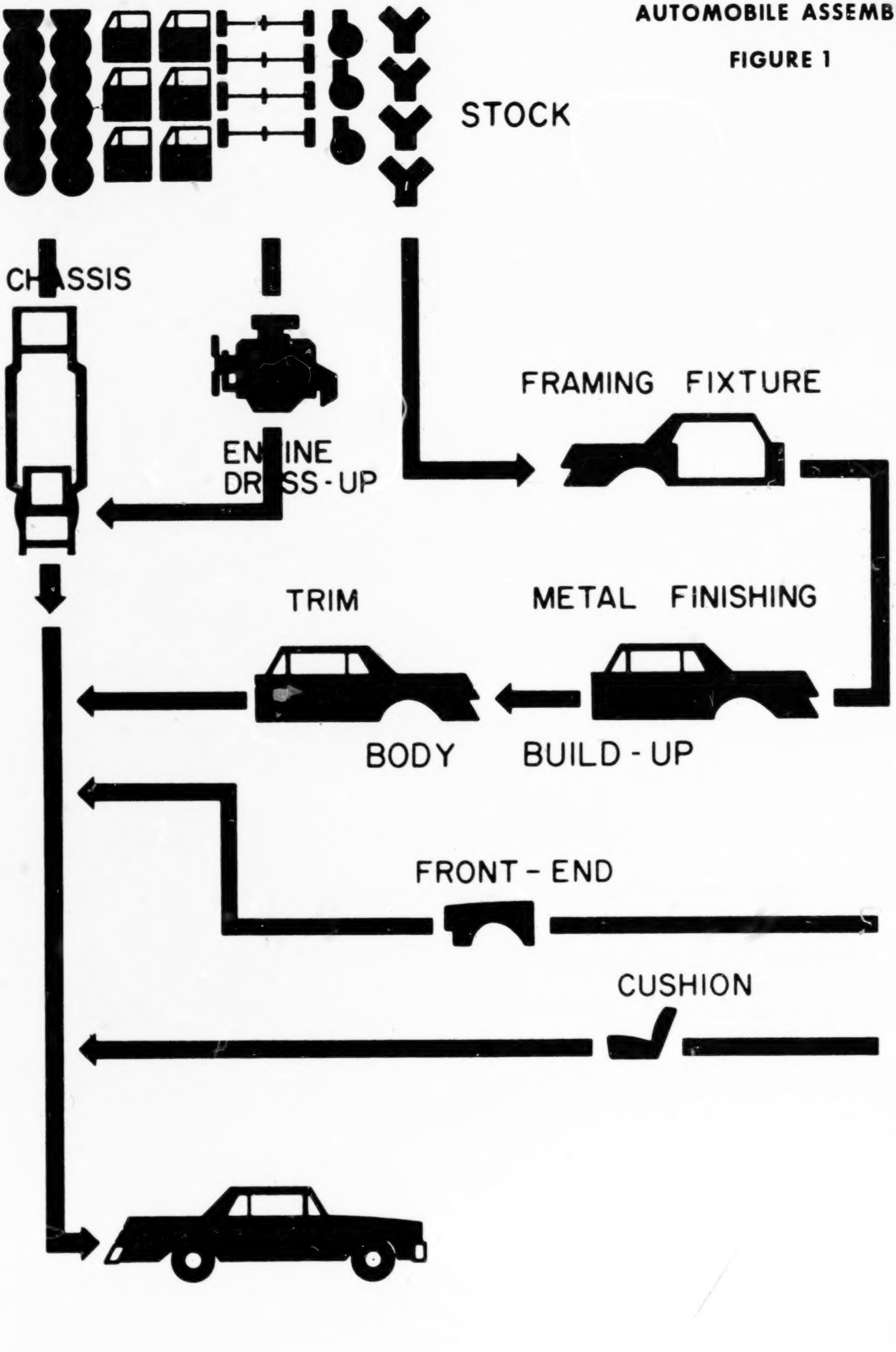
Industry	Corporation Receipts	Corporation Advertising	Advertising as a % of Receipts
Total, All Industry	930.7	10.4	1.1
Mining	11.9	0.03	0.2
Manufacturing	399.7	5.60	1.4
Beverages Indus.	9.2	0.50	5.0
Tobacco Manuf.	5.4	0.30	5.3
Textile Mill Products	15.2	0.09	0.6
Chemical & Allied Products	29.6	1.19	4.0
Petroleum Refining	39.1	0.19	0.5
Primary Metals Industry	28.3	0.11	0.4
Fabricated Metal Products*	23.2	0.20	0.9
Motor Vehicles & Motor Equipment	28.6	0.21	0.7

* Excludes Machinery and Transportation Equipment

Source: Statistical Abstract of the U.S., 1965

AUTOMOBILE ASSEMBLY

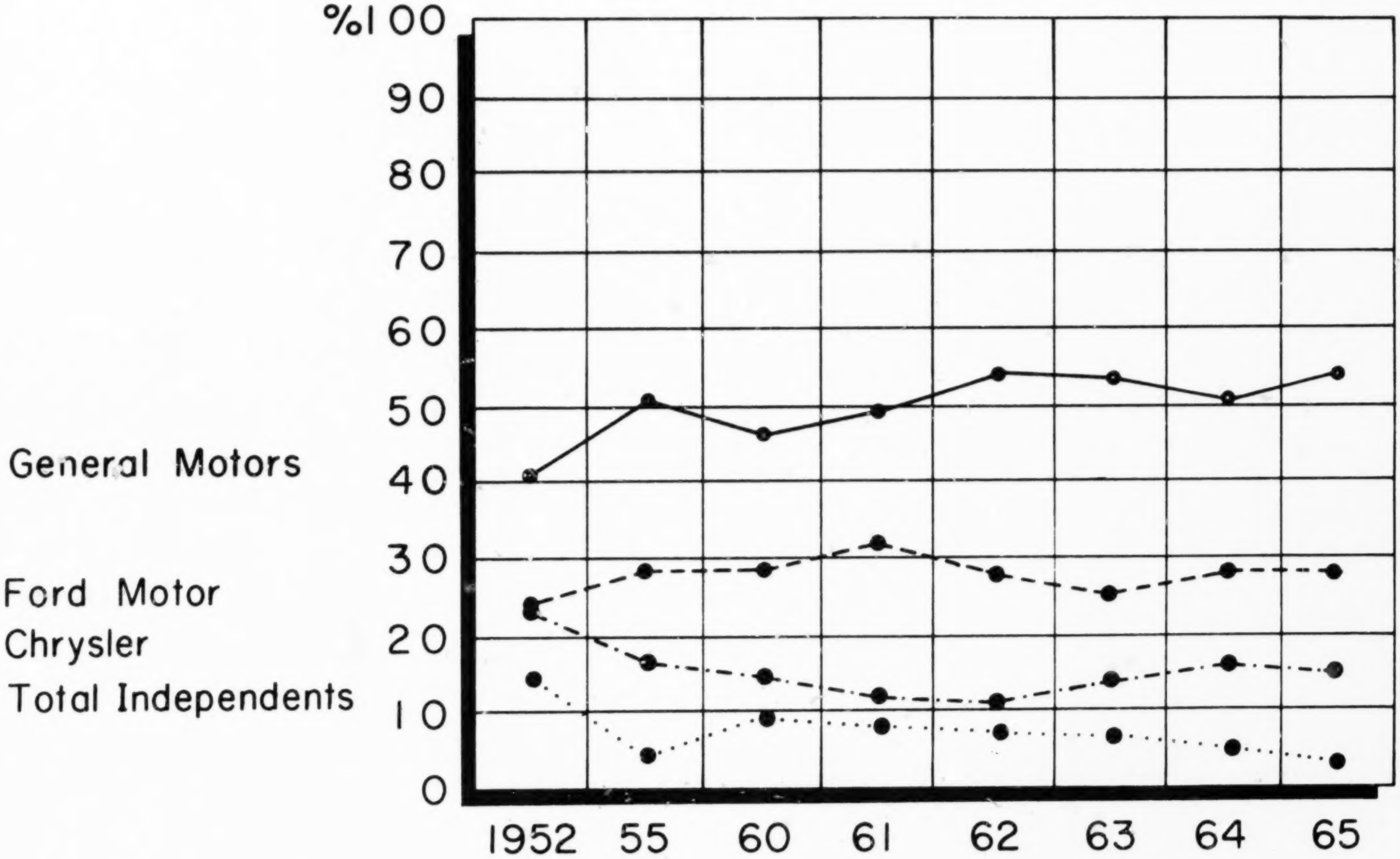
FIGURE 1


STOCK
CHASSIS
ENGINE
DRESS-UP
FRAMING FIXTURE
TRIM
METAL FINISHING
BODY
BUILD-UP
FRONT-END
CUSHION

AUTOMOBILE INDUSTRY

FIGURE 2

MARKET SHARES



AUTOMOBILE INDUSTRY

FIGURE 3

U. S. NEW CAR REGISTRATION

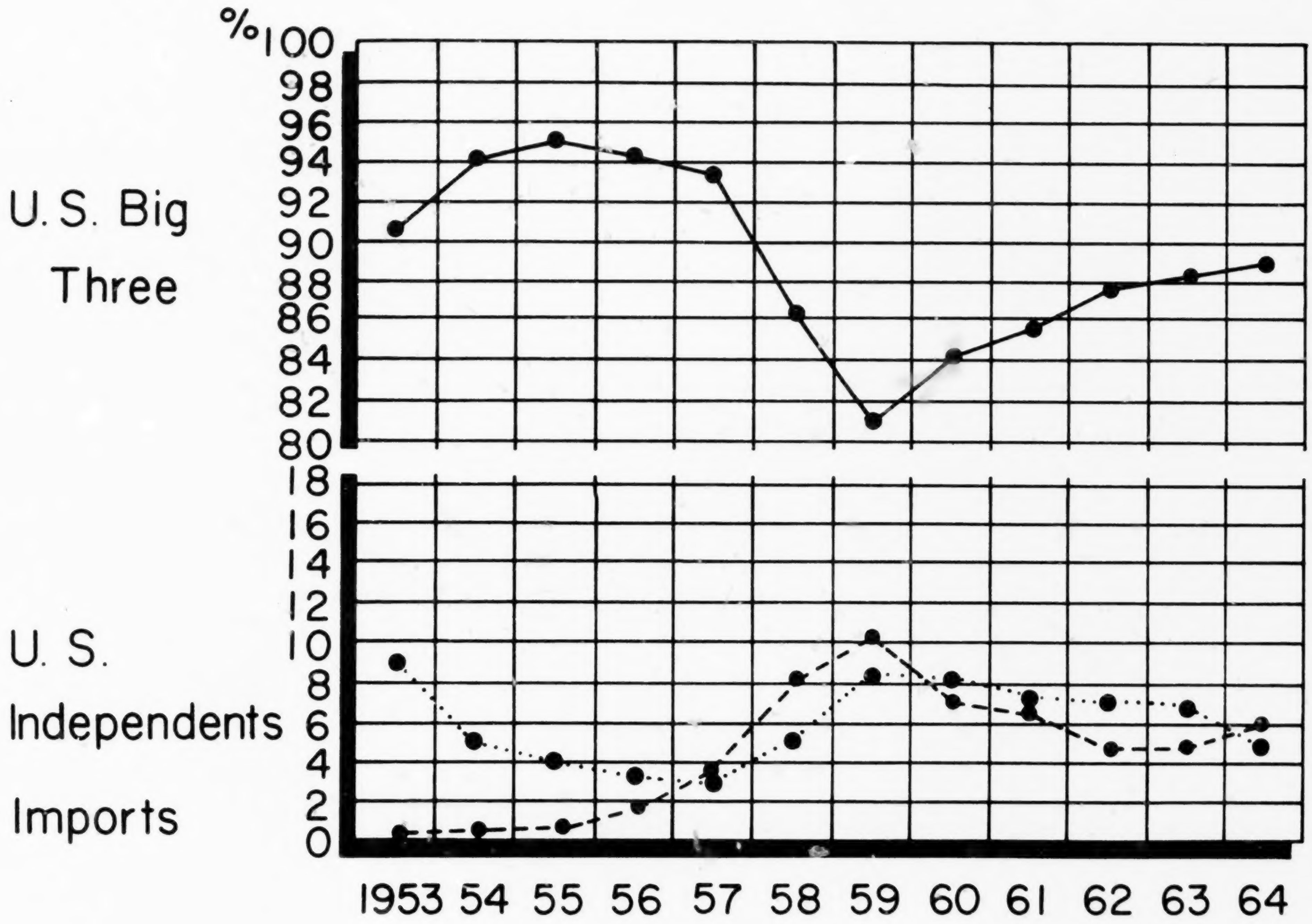
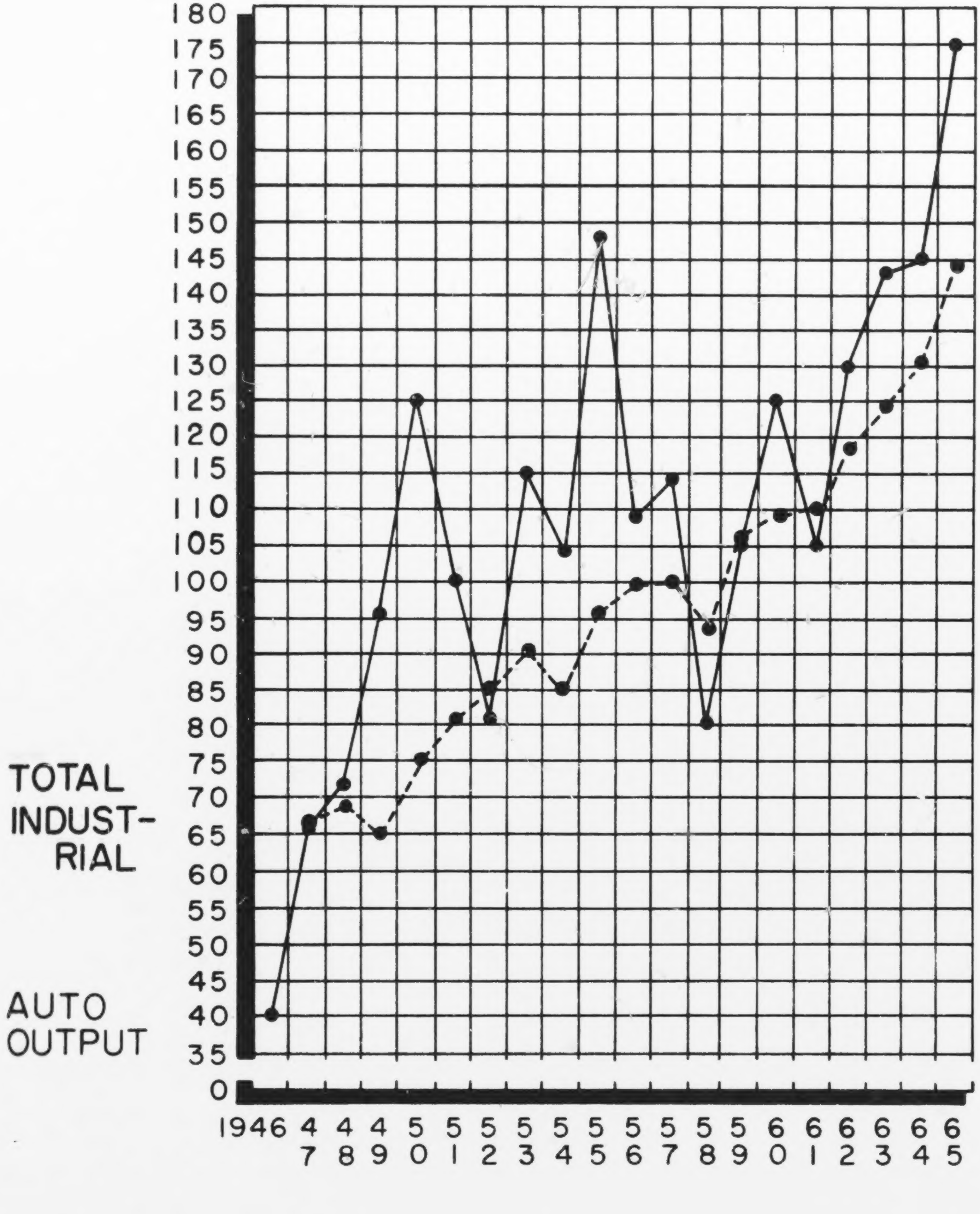


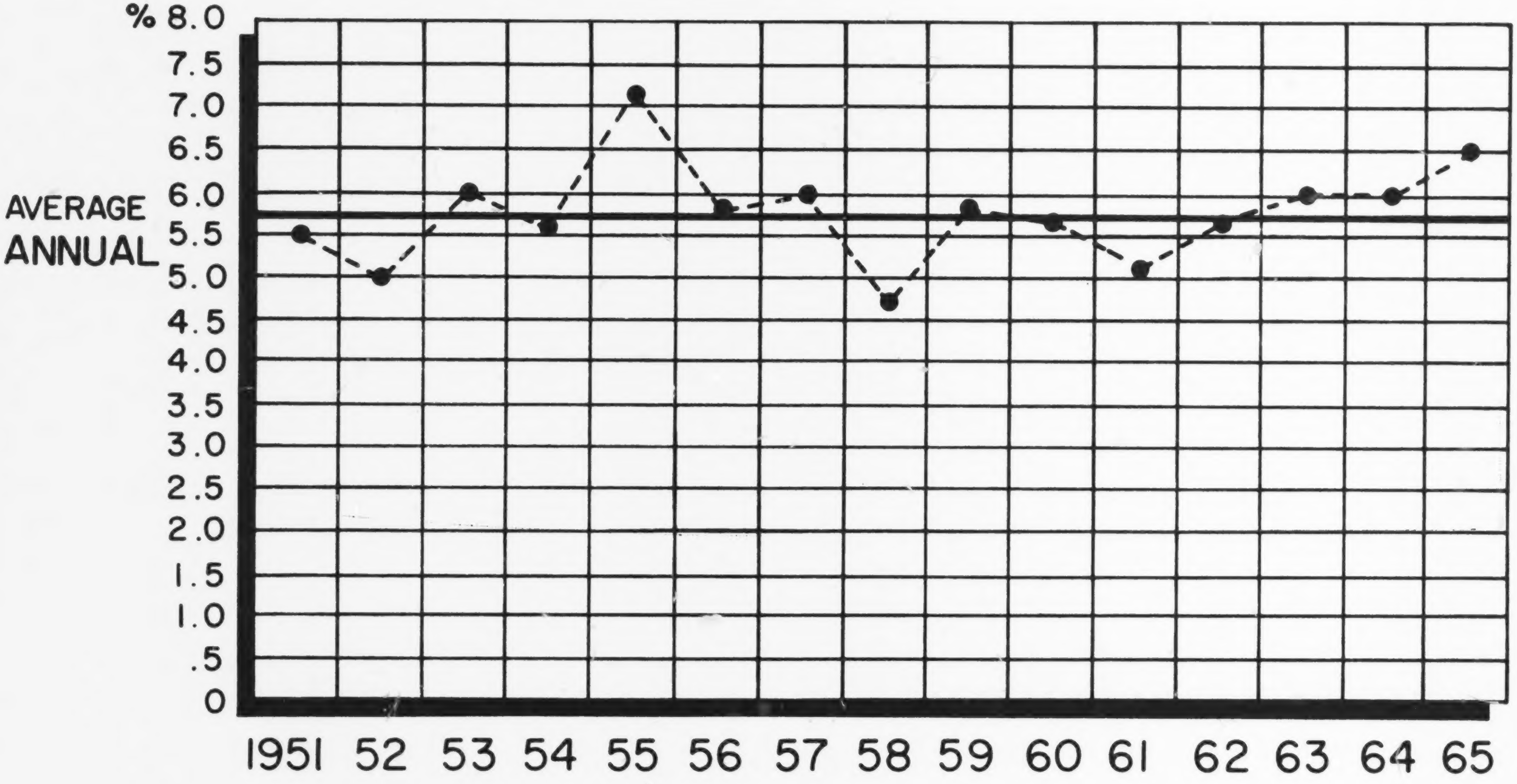
FIGURE 4

PRODUCTION COMPARISON

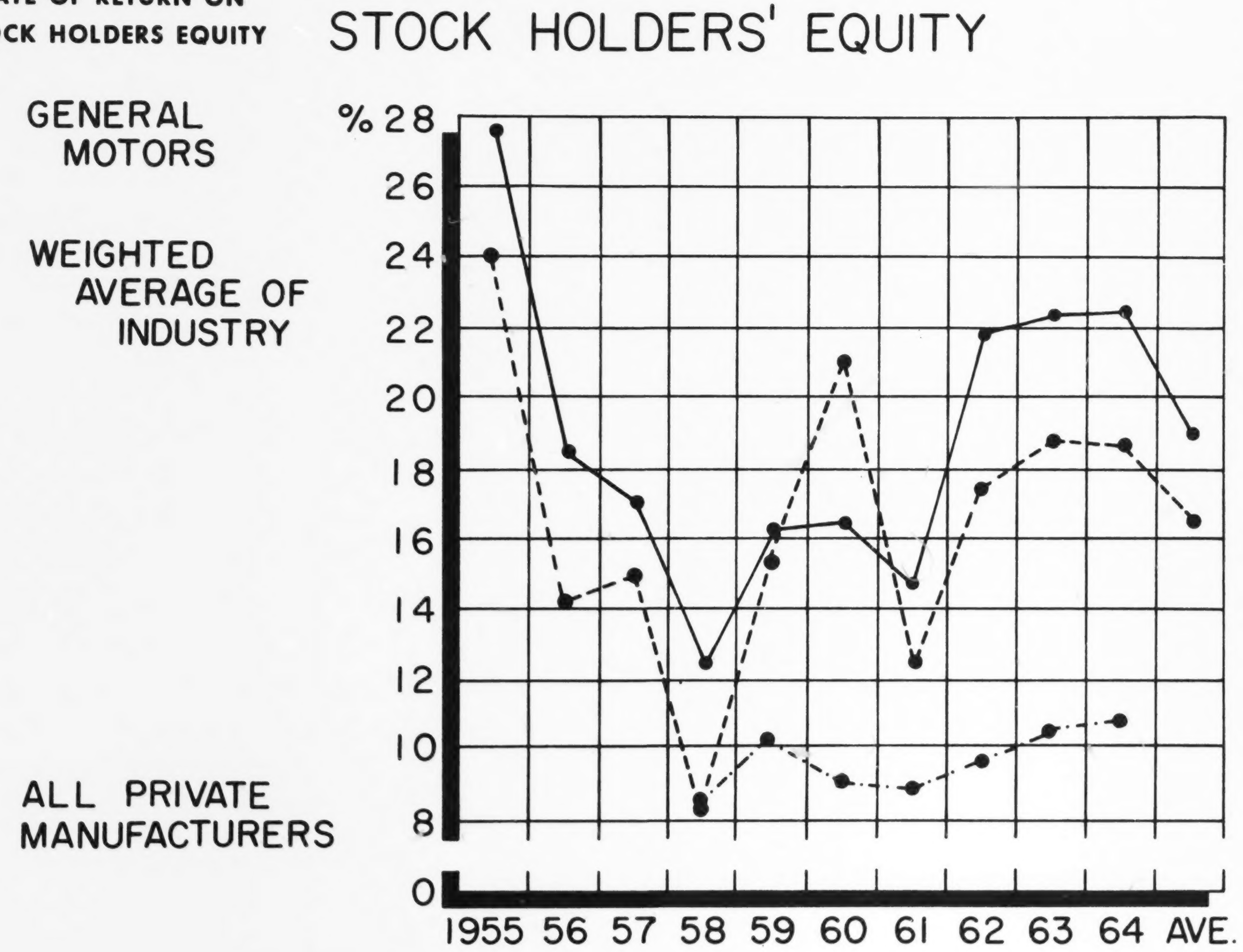


AUTOMOBILE INDUSTRY
FIGURE 5

PERSONAL CONSUMPTION ON AUTOS & PARTS



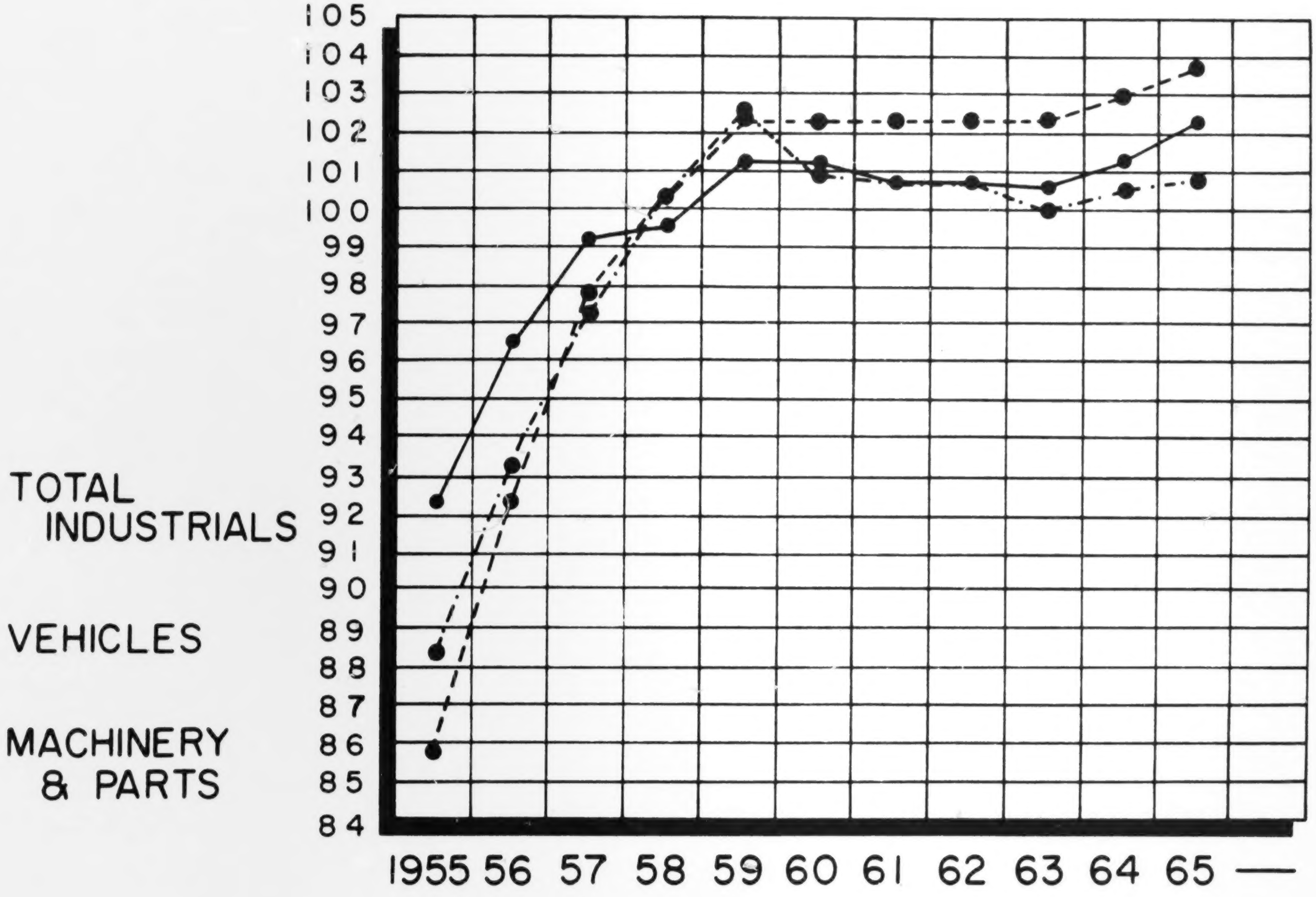
AUTOMOBILE INDUSTRY
FIGURE 6
RATE OF RETURN ON
STOCK HOLDERS EQUITY



AUTOMOBILE INDUSTRY

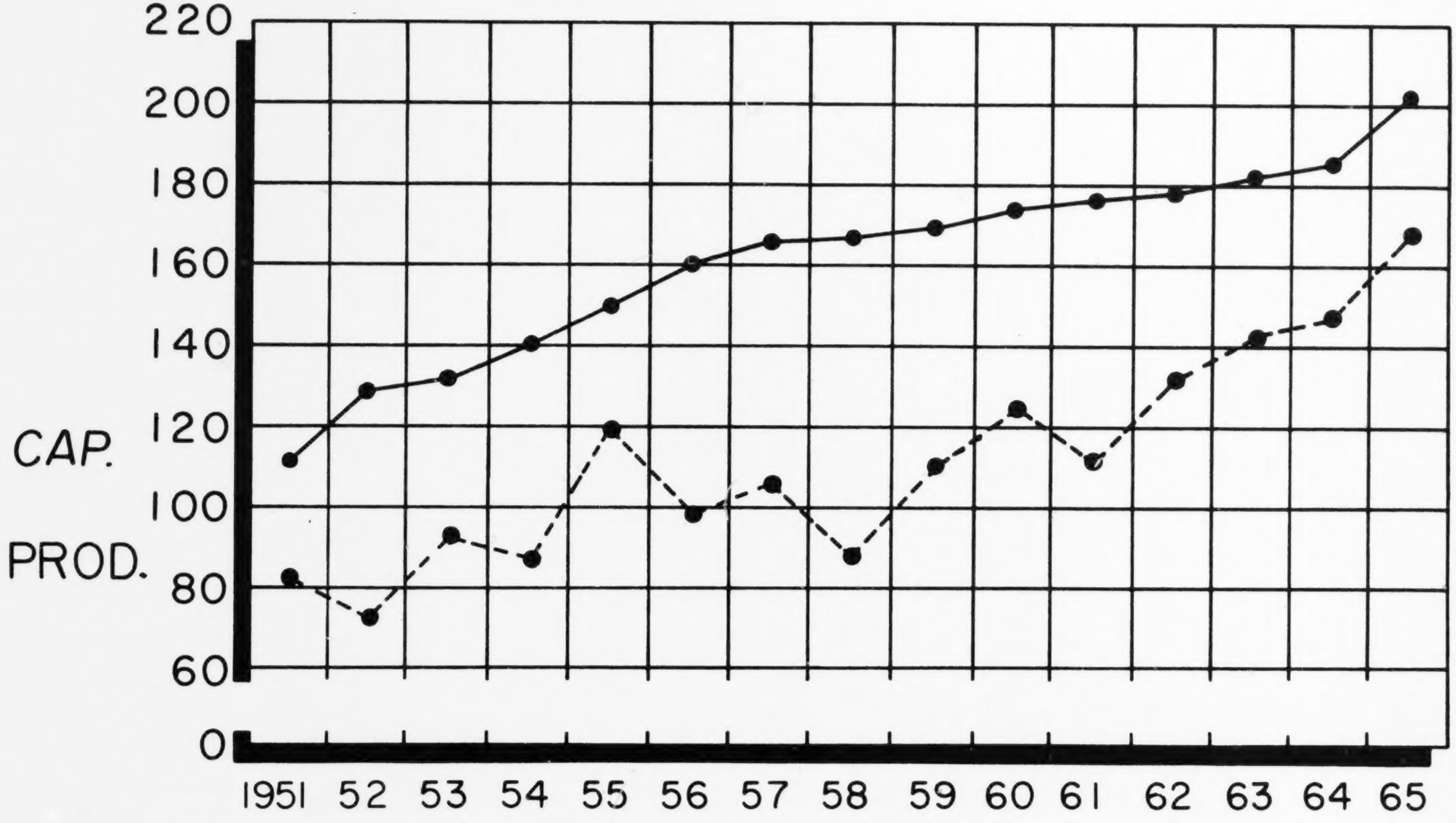
FIGURE 7

WHOLESALE PRICE INDEXES



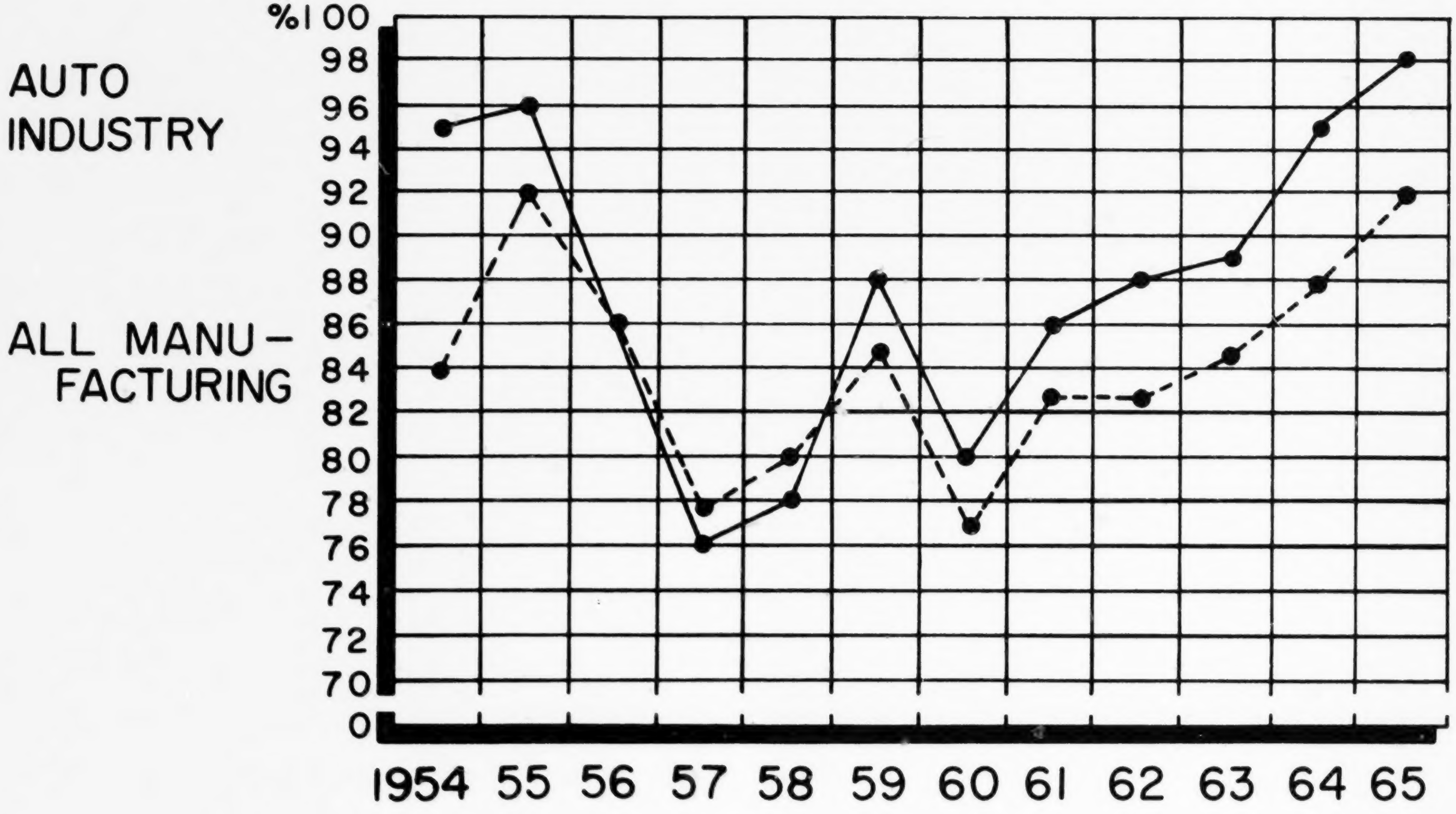
AUTOMOBILE INDUSTRY
FIGURE 8

GROWTH CAPACITY vs. PRODUCTION



AUTOMOBILE INDUSTRY
FIGURE 9

COMPARISON of CAPACITY UTILIZATION



ECON 12
UNIT II, LESSON 8
STUDENT ESSAY on the History and Industry Structure of the Telephone Industry.

I

THE DEVELOPMENT OF THE TELEPHONE INDUSTRY

ORIGIN OF THE TELEPHONE INDUSTRY

Alexander Graham Bell, credited as the inventor of the telephone, took out a patent on a transmitter in 1876, and on a magneto telephone in 1877. These patents were the basis for the Bell System's early and continued domination of the industry; they were perhaps the most valuable patents ever issued in this country.

Bell's experimentation with the telephone was financed by two friends, Thomas Sanders and Gardiner G. Hubbard. In 1875, Bell and his two backers organized a partnership, the Bell Patent Association, to develop and exploit the new invention. The Association attempted, unsuccessfully, to interest businessmen in the financial possibilities inherent in the invention. Western Union, for instance, in 1875, rejected the choice to buy the Bell patent for $100,000. In 1878, the association was incorporated in Massachusetts as the National Bell Telephone Company, and in 1880, the name was changed to The American Bell Telephone Company. The company was franchised to manufacture telephones and other equipment and to construct and operate telephone lines throughout the United States.

EARLY COMPETITION WITH WESTERN UNION, 1877-1879

The Western Union Company was Bell's first real competitor. Western Union, already well established in the telegraph field, finally realized the competitive threat of telephones to its business, and acquired certain patents of Elisha Gray in an attempt to undermine Bell's position. Western Union organized the American Speaking Telephone Company and employed Gray and Thomas Edison, who had invented a transmitter. With the resources of the Western Union behind it, the new company seemed at first to provide a formidable competitor. However, by 1879, with their acquisition of the improved Blake transmitter, and as a result of a suit against Western Union for alleged patent infringement, preeminence in the industry swung over to the Bell Company. In spite of the value of Western Union's patents and the company's power and experience, the Bell System succeeded in forcing Western Union to retire from the telephone business. Several factors contributed to this victory: the Blake transmitter; the driving, aggressive genius of Bell's famous general manager, Theodore N. Vail; the Bell System's threat to enter the telegraph business; and support from the notorious Jay Gould, who was himself attempting to break Western Union's monopoly.[1]

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[1] Federal Communications Commission, Investigation of the Telephone Industry in the United States. (House Doc. 340, 76th Cong., 1st Sess.) (Washington, D.C.: U.S. Government Printing Office, 1939), pp. 123-125.

THE DEVELOPMENT OF THE "A. T. & T."

Organization of Local Exchange Sources

Because the Bell System lacked the necessary funds to establish local telephone exchanges, the company encouraged the formation of local telephone exchange companies. In return for the use of the Bell-patented apparatus, these companies were required to grant American Bell from 30 to 50 per cent of their stock. Until 1927 [2] the company maintained control over telephone instruments by renting rather than selling them to the operating companies.

By 1879, the American Bell had entered into 185 such service contracts with local operating companies, covering an area including densely-populated parts of the country. At first, five-year licenses were common because of the uncertainties of the new venture. As the industry grew, American Bell granted permanent licenses, taking in return additional stock interest in the licenses. These permanent contracts established American Bell's control over the subsidiary local companies, and allowed the Bell System to exploit its patents virtually in perpetuity.

Purchase of Western Electric

It soon became evident that in order to establish a unified nationwide telephone system, standardization of equipment was essential. Accordingly, in 1881, the American Bell Telephone Company acquired a substantial interest in the Western Electric Manufacturing Company of Chicago and changed its name to the Western Electric Company. The new company became the chief manufacturer and supplier for the Bell System, and conducted research and development deemed essential to telephone progress. From this time on, licenses were required to use equipment manufactured according to specifications which could only be met by Western Electric. Although the arrangement provided uniformity of design and ease of interconnections, it also tightened Bell's monopolistic controls on the industry.

Establishment of Long-Distance Lines.

The early operating companies provided only local telephone service. In 1884, improvements in techniques and the desire for an extended range of communication led the American Bell to set up inter-company connections which provided the basis for long-distance service.[3] In 1885, the Bell System established a new corporation, the American Telephone and Telegraph Company (often referred to as "Mother Bell") as a wholly-owned subsidiary of American Bell Telephone Company, to operate the long-distance network connecting the local exchanges of the operating companies. Later, American Bell transferred all investments in its other subsidiaries to the American Company and eventually the two companies were consolidated.

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[2] Starting in 1927, all telephone instruments were sold to the operating companies.

[3] However, long-range communication had to await the turn of the century with the invention of Pupin's induction coil.

In 1900, the American Company (A.T.& T.) became the parent holding company as well as the operator of the long-distance lines. In 1924, Bell Telephone Laboratories, Inc., was established to take over the engineering and a portion of the patent department of Western Electric. Thus, by the early 1920's, the Bell System had established the corporate structure which exists today. (See Section: "The Telephone Industry Today")

A SECOND PERIOD OF COMPETITION

Rise of the Independents

Immediately after the expiration of the Bell patents in 1893 and 1894, numerous independent companies sprang up throughout the country. The competition was vigorous and the number of independent companies increased rapidly until 1907, at which time there were 2,986,515 independent stations[4], as compared with 3,132,063 Bell stations. The independents offered particularly severe competition in the middle-western states, where the Bell Company allegedly gave inadequate service at unsatisfactory rates. Many independents also developed in rural areas that had more or less been neglected by the Bell companies. Because of rate wars and new competitiors, Bells' share of the telephone business declined, and so did income. Annual Bell revenues per station dropped from $88 in 1895 to $43 in 1907.

A.T.& T. used a number of tactics to meet the new competition: it reduced telephone rates and improved services in the better-established Bell Companies; it attempted to prolong its patent monopoly by patenting improved features; it instigated patent-infringement suits to force independents out of business; it refused to connect or sell telephones to certain independents. Despite these practices, a number of the independent companies survived, prospered and grew to considerable size. A greater number, however, were forced out of buiness. Failure was due, in part, to Bell's predatory policies, but also to the independents' unsound financial practices.[5]

Period of Acquisition, 1907-1913

After 1907, the American Telephone and Telegraph Company came under banker control and instituted aggressive acquisition policies. In 1909, the A.T. & T. acquired a substantial stock interest in Western Union, an acquisisition that was promptly criticized by Postal Telegraph—a major competitor of Western Union. It also made a determined effort to break up independent systems by the purchase of key properties. It was aided in this endeavor by the investment-banking houses which denied financial backing to distressed independents.

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[4] A station is a place of residence or business where a complete assemblage of equipment for telephone service is located.

[5] Many independents, for example, in their eagerness for profits, neglected depreciation--with disastrous financial results.

As a result, in 1913, the A.T. & T. was threatened with two antitrust suits, one for discrimination against Postal Telegraph in favor of Western Union, and one for alleged predatory practices against independents, for its refusal to furnish satisfactory long-distance interconnections with the independents. In 1913, in an effort to end the threat of prosecution, the A.T. & T. made an agreement with the U.S. Attorney General. In this agreement, the Kingsbury Commitment, the A.T. & T. agreed to three changes in its acquisition conduct: (1) to sell its Western Union stock, thereby giving up its control of the Western Union Telegraph Company; (2) to interconnect with those independent telephone companies which met its equipment standards and (3) to cease acquiring control of competing companies.[6]

Problems of the Duplicate Exchanges.

One of the major problems resulting from competition in the telephone industry was that of duplicate exchanges.[7] In 1912, the independents and Bell Companies competed in 1200 communities, while independents fought each other in 600 other places. This proved a great source of inconvenience and expense to the public in a number of ways. It resulted in a duplicate network of telephone wires strung above the city streets, and it required subscribers to take service from two or more companies in order to telephone all other subscribers in the same town. This meant subscribers were required to have two or more telephones in their homes or buinesses, two or more telephone books, not to mention two or more telephone bills. These drawbacks convinced the public of the need for unified telephone service. The telephone industry seemed to provide the best service when there was only one company in a local area—it was a "natural" monopoly.

At first the Bell Telephone and the independents attempted to solve this problem by themselves. In 1909, certain independents agreed with Bell to divide their territory and arrange for the sale of property to one another. Following the threat of an antitrust suit in 1913, however, the Bell System stopped purchasing competing systems. Finally, in 1921, Congress passed the Graham Act which permitted consolidation of companies with the consent of the Interstate Commerce Commission. This, in effect, exempted the telephone industry from the Sherman Antitrust Act as far as consolidation of competing companies was concerned.

As a result of the Graham Act, competitive warfare in the telephone industry came to an end. Telephone service was unified through acquisitions and mergers so as to leave a single company, either Bell of non-Bell, operating in each area.

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[6] Letter from N.C. Kingsbury, vice-president of A.T. & T., to the Attorney General of the United States, Dec. 19, 1913. See Annual Report of the A.T. & T., 1913, pp. 24-26.

[7] An exchange is a geographical unit of telephone service, usually embracing a city, town or village and other environs.

Under the Hall Memorandum of 1922[8], the Bell System adopted a policy of friendly cooperation with the independent companies, pledging to purchase only distressed companies and to dispose of minority interests in all independent companies outside the Bell system. Provision was made for interconnecting the facilities of the non-Bell companies with those of the Bell System, thus making possible the interconnection of nearly all telephones in the United States, as well as connections to the rest of the world.

Despite the restricted-acquisition policy of the Bell System, by 1935 the A.T. & T. had succeeded in consolidating its control over more than 75 per cent of the industry (Table 1) The independent companies have shown remarkable growth since the end of World War II, despite their shrinking number. The declining number of independent telephone companies in recent years has been caused primarily by mergers among independents to achieve economies of scale, rather than Bell System acquisitions.

With the decline of competition in the telephone industry, the public realized the need of government regulations of prices and services. By 1919, 45 states and the District of Columbia had commissions whose duties included telephone rates-and-service regulation. Interstate telephone traffic was placed under the jurisdiction of the Interstate Commerce Commission as early as 1910. In 1934, the ICC's regulatory power over the telephone industry was transferred to the Federal Communications Commission. Because the operations of most indepedents are confined within the boundaries of one state, they are ordinarly regulated by only state or local agencies. The Bell System, however, is subject to regulations by both state commissions and the FCC.

THE TELEPHONE INDUSTRY TODAY

The Bell System is by far the dominant segment of the telephone industry, serving approximately 76 million phones in 1965, or 84 per cent of the total, as compared with 15.2 million phones, or 16 per cent of the total for the independents. (Table 2) Although the independents are dwarfed by the mammoth Bell System, they nevertheless form a comparatively large industry in themselves. The number of telephones they served in 1965, for example, is more than the total number of phones in Britain and France combined. The biggest of the independents, General Telephone and Electronics Corporation, serves more than seven million firms (Table 2) and is, in fact, the 28th-largest company in the nation.[9]

The Bell System's Corporate Structure. The Bell System is a holding company, consisting of the American Telephone and Telegraph Company, 23 affiliated regional exchange companies operating throughout the United Stated, Western Electric, and the Bell Telephone Laboratories. Each company has the primary

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[8] When in 1921 the Graham Act permitted Telephone companies to merge or consolidate with competing companies, the Kingsbury Commitment was followed by the Hall Memorandum of 1922, which explained the Bell System's acquisitive policy. See letter from E. K. Hall, vice president of A.T. & T. to F. B. McKinnon, president of the United States Independent Telephone Association, June 14, 1922.

[9] See Fortune's Directory of the 500 Largest Industrial Corporations, 1964.

TABLE 1

DISTRIBUTION OF TELEPHONES BETWEEN THE BELL SYSTEM AND INDEPENDENT COMPANIES*

Year	Total Telephones	Bell System Telephones	Independent Company Telephones	Bell System Percentage of the Whole
1880	47,800	47,800	N. F.	100.0
1885	155,751	155,751	N. F.	100.0
1890	227,857	227,857	N. F.	100.0
1895	309,502	309,502	30,000	91.2
1900	835,911	835,911	540,000	60.8
1902	2,371,044	1,317,178	1,053,866	55.5
1907	6,118,578	3,132,063	2,986,515	51.2
1912	8,729,592	5,087,027	3,642,565	58.3
1917	11,716,520	7,326,858	4,389,662	62.5
1920	13,329,400	8,134,000	5,195,000	61.0
1925	16,935,900	11,910,000	5,025,000	70.5
1930	20,201,000	15,187,000	5,014,000	75.2
1935	17,424,000	13,573,000	3,851,000	78.1
1940	21,928,000	17,484,000	4,444,000	79.7
1945	27,867,000	22,446,000	5,421,000	80.5
1947	34,867,000	28,507,000	6,360,000	81.8

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* Figures for 1890-1900 are from the Federal Communications Commission, *Investigation of the Telephone Industry*, 1939, p. 129. Figures for 1902-1917 are from *U.S. Census of Electrical Industries, Telephone and Telegraphs*. Figures for 1920-1947 are from the *U.S. Statistical Abstract*. The series are not strictly comparable.

TABLE 2

SHARE OF TELEPHONE SERVICES BY A. T. & T. AND INDEPENDENTS, 1965

System	No. of operating companies	Number of Telephones	Percentage of Total
1. Bell System (American Telephone & Telegraph)	**22**	**75,866,000**	**83**
a. Leading Bell Operating Co.			
Pacific Tel & Tel		**8,044,000**	
New England Tel & Tel		**3,893,000**	
Mountain States Tel & Tel		**2,946,931**	
Pacific Northwest Bell Tel		**1,820,032***	
Southern New England Tel		**1,584,000**	
Cincinnati & Suburban Bell Tel		**694,810**	
2. Independents	**2500**	**15,190,000**	**17**
a. Leading Non-Bell Systems			
General Tel & Electronics		**7,176,000**	**8**
Western Power & Gas		**655,048**	
United Utilities		**784,778**	
Total Telephone Industry		**91,056,000**	**100**

*** 1964 figures**

Source: Clark, Dodge, & Co., Industry Review Service, March 15, 1966, appendix.

responsibility of providing local telephone service and interconnections between communities within its own territory. The A.T. & T. interconnects the territorial operating companies by means of its long-distance lines; affords a central advisory service; operates the Bell Telephone Laboratories devoted to research, development, and design in the communications field; owns and operates the Western Electric Company, the System's manufacturing and supply unit; and furnishes the affiliated companies with engineering assistance and operating advice as well as assistance with legal, accounting, and financial matters. The A.T.& T. owns and operates outright 16 of the 23 operating exchange companies, has a majority control in four others and a minority interest in three (Table 3) In addition, it completely owns the Western Electric Company, the nation's ninth largest industrial corporation, and shares control of the Bell Telephone Laboratories with Western Electric Company. It controls 84 per cent of the nation's local telephone service and 98 per cent of its long-distance lines. Through its manufacturing subsidiary, Western Electric, it accounts for 90 per cent of the nation's output of telephone equipment.

The president of the A.T. & T is empowered to vote its stock in the operating companies and to select the directors and officers of these concerns. The parent is thus in direct and complete control of the entire telephone system. In actuality, however, the associated companies are largely autonomous units, planning their own construction and expansion, deciding what services will be offered, and fighting their own rate battles with state and local regulatory agencies.

In 1965, the Bell System controlled over $34 billion of gross assets, one of the largest aggregations of capital and resources ever assembled by a private non-financial company in history. This sum is an amount only $10 billion short of equalling the value of the gold held by all of the world governments. It is a publicly-owned corporation, and the number of stockholders (2,700,000) is larger than the sum of stockholders for the next three largest companies.[10]

The main sources of A.T. & T. income are from dividends paid it by the associated telephone companies, from charges A.T. & T. makes for the services rendered to subsidiaries and from the earnings of its long-distance lines, and from the profits of Western Electric. Although the corporate structure of A.T. & T. is much simpler than that of other utility-holding company systems, the relation of the parent company to its subsidiaries is much the same in all such holding companies.

The Independents. While Bell System serves the larger cities, for the most part the independent companies provide local services in the smaller urban and rural communities. At the end of 1965, the independents operated 15.2 million telephones, or 17 per cent of the U.S. total. (Table 2) They cover one-half of the nation's geographic area, operating in 49 of the 50

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[10] In 1965, General Motors, in second place, had 1,309,419 stockholders, Standard Oil Co. of N.J. ranked third with 723,000 stockholders, and General Electric in fourth place with 525,000.

TABLE 3

BELL SYSTEM COMPANIES, 1965

Affiliates	Capital Stocks Owned by A.T.&T.Co.		Advances from A.T. & T. Co.*
	% Owned	Equity	
Principal Telephone Subsidiaries:			
New England Tel & Tel Co.	69.3	$ 553,795	$ 105,000
New York Tel Co.	100.0	2,037,546	....
New Jersey Bell Tel. Co.	100.0	801,547	78,100
Bell Tel. Co. of Pennsylvania	100.0	864,366	65,000
Diamond State Tel. Co.	100.0	63,370	3,775
Chesapeake & Potomac Tel. Co.	100.0	179,944	24,300
Chesapeake & Potomac Tel. Co. of Md.	100.0	398,590	41,200
Chesapeake & Potomac Tel. Co. of Va.	100.0	404,356	67,300
Chesapeake & Potomac Tel. Co. of W. Va.	100.0	144,668	15,800
Southern Bell Tel. Co.	100.0	2,166,592	135,900
Ohio Bell Tel. Co.	100.0	695,771	104,000
Michigan Bell Tel. Co.	100.0	643,128	34,700
Indiana Bell Tel. Co. Inc.	100.0	297,828	8,600
Wisconsin Tel. Co.	100.0	315,040	22,700
Illinois Bell Tel. Co.	99.3	1,160,935	46,600
Northwestern Bell Tel. Co.	100.0	724,048	50,900
Southwestern Bell Tel. Co.	100.0	2,140,624	88,000
Mountain States Tel. & Tel. Co.	86.7	768,771	23,000
Pacific Northwest Bell Tel. Co.	89.1	433,359	21,900
Bell Tel. Co. of Nevada	**.....	....	......
TOTAL		$16,751,271	$1,051,775
Subsidiaries Not Consolidated:			
Bell Telephone Laboratories, Inc.	***50.0	$ 40,000	....
Western Electric Co., Inc.	99.8	1,491,218	....
195 Broadway Corp.	100.0	29,051	$ 2,675
Other****	.....	54,649	2,423
TOTAL		$ 1,614,918	$ 5,098
Other Companies:			
Southern New England Tel. Co.	18.3	$ 41,587	$ 17,600
Cincinnati & Suburban Bell Tel. Co.	28.4	24,346	2,100
Bell Tel. of Canada	2.5	18,855	......
TOTAL.		$ 84,788	$ 19,700

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* Thousands of dollars

** Wholly-owned subsidiary of Pacific Tel. & Tel. Co. (Equity $76,801,000; Advances $1,100,000).

*** Remainder owned by Western Electric Company

**** Includes investments of principal telephone subsidiaries.

Source: A.T. & T., Annual Report, 1965, p. 27.

states (excluding Deleware). While they serve twice as many communities as does Bell System, the total size of the territory they serve approximates that served by the Bell System. States that have the greatest number of independent stations are California (nearly 2 million), Ohio (over 1 million), Pennsylvania, Illinois and Indiana, New York, Texas, and North Carolina, (over 500,000 each.) (See Map, Figure 1)

In 1965, the independents had $6.8 billion of plant investment and $1.7 billion of revenue. Only 144 of the independents, however, have more than $1 million revenue. There are about 50 independent companies with common-stock publicly held, but only about a dozen of them are sufficient in size to interest large investors.[11]

As a result of acquisition and mergers among independents, the number of non-Bell companies has declined from about 5,000 ten years ago to about 2,400 today.The need to mechanize to improve efficiency and provide the better service demanded by customers has been the primary force behind the increasing concentration. The large plant investment required for conversion to dial systems, for instance, was often too heavy a financial burden for the small companies to assume. With the coming of more sophisticated communications facilities, such as electronic switching, the trend may accelerate in future years.

A by-product of these mergers has been the formation of the independent "system," a number of operating companies, often widely scattered, controlled by one holding company. These "systems" not only have the advantage of greater financial resources, but also are less reactive to adverse regional economic changes. Dominant among these holding companies is General Telephone and Electronics, which accounts for nearly half of the independents' total (Table 1) and also engages in extensive manufacturing activies. Other systems, all considerably smaller than General Telephone, include United Utilites, Western Power and Gas, Continental Independent Telephone, and Mid-Continent Telephone. Among the larger individual operating companies are Rochester Telephone, Hawaiian Telephone, Carolina Telephone and Telegraph, and Intermountain Telephone.

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[11] Clark, Dodge & Co., Telephone Utility Industry, March 15, 1966, p. 4.

II
ECONOMIC CHARACTERISTICS OF THE TELEPHONE INDUSTRY

The demand and supply characteristics of the telephone industry explain why it has become a public utility and the regulatory problems connected with establishing "just and reasonable" rates.

A "Natural" Monopoly. The telephone industry is basically a natural monopoly because the greater number of subscribers connected through the switchboard of one company, the more valuable is the service to any one subscriber. Thus, telephone service can be furnished best when all subscribers are connected to a single company, rather than competing companies.

Increasing Costs. In contrast to practically all other utility industries, the telephone industry is characteristically spoken of as an increasing cost industry, ie., an increase in the number of subscribers involves greater fixed and operating expenses per subscriber and, therefore, higher costs per unit of service. Increasing costs may be attributed to the following factors:

(1) As telephone systems grow larger, they generally need to furnish higher quality service. For example, the demands of subscribers in metropolitan areas are much more complicated than those in rural communities. An urban exchange generally contains a great deal more expensive equipment than smaller communities.

(2) For each new line added to the system, each of the lines already connected must be connected to the new line. Thus, new telephone installation augments the complexity of switchboards and the number of exchanges.

(3) Maintenance expenses increase with additional subscribers; in general, maintenance expenses average higher in larger cities than in smaller communities.

Long-run Decreasing Costs. Over a long period of time, increasing cost tendencies have been offset by technological improvements which have made the communications network more efficient and hence have reduced unit costs.[1] These cost-saving improvements have originated out of the laboratories of both the Bell System and the independents. Among the improvements in the last decade and a half which have contributed to decreasing costs are the following:

1. The replacement of the traditional wire and cable for voice and written communications with coaxial cable facilities. When the first commercial coaxial cable was installed in 1926, it could carry 480 simultaneous conversations which was at that time nothing short of spectacular. Recent technological improvements in the coaxial cable, however, have made it possible to carry on as many as 32,000 simultaneous conversations.

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[1] Strictly speaking in the sense that economists use the term, a decreasing cost industry is one in which an increase in the size of plant produces the economies of cost. Economies arising from technological improvements over the course of time are not included in this category. However, labelled, these cost-reducing factors are significant.

2. The steady and long-continued program of replacing manually operated switchboards with dial equipment in local exchanges, coupled with the introduction of electromechianical switching equipment for long-distance operations. Today, most domestic telephones are dial operated for local calls, while 87 per cent of the Bell System is equipped for direct-distance dialing. More than half of all long-distance calls are dialed straight through in a few seconds' time. In the majority of cases, the calling number is also automatically recorded, so that it is unnecessary for an operator to request it for billing purposes.

3. The installation of new electronic switching (now in 12 cities, including Detroit) to replace present electromechanical switching facilities.[2] Operating economies derived from this important technological achievement are expected at least to match those derived from the conversion to dial operations. Electronic switching systems will also permit abbreviated dialing of frequently-called numbers and automatic transfer of calls to another number.

Research and Development. The Telephone industry spends large sums annually on research and development in order to improve and expand communications service and at the same time hold down operating costs.[2a] It wasn't long ago that the telephone system was composed of thousands of local exchanges filled with women who answered to the name, "Central." Each office was an entity to itself, connected to other offices by a few strands of wire -- capable of transmitting only voice and telegraph information. A long-distance call had to be relayed from office to office, often requiring a half hour or more for completion. Today, the system is a complex mass of wires, circuits and cables, best described as continent-wide computer. Highly efficient, it is capable of transmitting information not only in the form of voice, but also in the form of data and picture--either alternatively or simultaneously.

In days past, only wires were used for telephone communication. Today, transcontinental microwave radio ystems are being used as an alternate means of providing circuits for long-distance telephone transmission. Such circuits have the capacity to handle 6,000 telephone conversations simultaneously or six television programs. Moreover, they can transmit the voice farther, faster, and clearer than over the wire. In the near future, laser light beams[3] appear to have important possibilities for carrying telephone calls, data, and pictures in great quantities--perhaps ten thousand times more than can be handled over coaxial cable or microwave systems today. Moreover, they are believed capable of transmitting the voice clearer and farther than by any previous method.

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[2] Electronic switching was first installed on a regular basis in 1965, after both the A.T. & T. and the independent segment of the industry tested experimental installations. The complete changeover to E.S.S. may require about $21 billion of new investment on the part of A.T. & T. along and take about 35 years.

[2a] The Research and Development data provided by McGraw-Hill is not released for the telephone industry because it would be revealing confidential information about the American Telephone and Telegraph, which represents about 95 per cent of the industry total. According to Phillips, The Economics of Regulation, p. 671, the Bell Labs has an annual budget of approximately $350 million. Of this amount, $80 million comes from the A.T. &T. (45 per cent from the license contract payments, and 55 per cent from the Long-Distance Department), $80 million from Western Electric, and the remaining $190 million from the government for military research and development. The $350 million spent by the Bell Labs compares with $120 million spent by the Steel industry in 1965, $90 million by the non-ferrous metals, $242 by the drug and medicine industry, and $360 million by the petroleum refining industry.

The bulk of the research in the telephone industry is carried on by Bell Telephone Laboratories of the A.T. & T. and the General Telephone Electronics Laboratories of G.T. & E.[4] The Bell Labs is responsible for the discovery of the transistor and development of Telstar. The G.T.E. Laboratories has done major work in laser technology. Over the years, the smaller, independent companies have also initiated many important technological developments. The first practical dialing system, the headset, selection ringing, automatic toll ticketing and direct operator dialing for long-distance calls were all introduced by independents. In 1962, a subsidiary of Continental Telephone, one of the small independent operating companies, opened the first electronic exchange on a commercial basis.

Because the telephone industry has a very fast-moving technology in communications, obsolescence is an important structural problem of the industry. Rapid obsolescence of equipment constitutes a large element of cost of new service. For example in 1965, provision for depreciation by the Bell System amounted to 14.7 of gross revenue, representing 5.1 per cent of average investment in depreciable plant.

Large, Fixed Investment. The telephone industry requires large capital investment in the form of physical plant and expensive durable equipment. Total investment of the A.T. & T. in 1865, stood at more than $33.5 billion--larger than any other company in the world. In addition, it was adding an additional $3.9 billion into new plant and equipment (approximately 11.1 per cent of its gross plant), a sum almost as much as the Federal Government spends on all its foreign-aid programs. One result of the large capital requirement has been a low annual rate of capital turnover (the rates of annual revenues to total investment) compared with other industries. (Table 1). In 1965, the magnitude of the Bell System's fixed costs amounted to approximately 59 per cent of total revenue, as opposed to about 21 per cent for manufacturing and about 46 per cent for electric utilities.[5]

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[3] Laser stands for Light Amplification by Stimulated Emission of Radiation. Because of the ability of laser devices to produce extremely narrow and concentrated light beams, its waves can be controlled in the same way radar waves are regulated, and these are capable of transmitting long-distance signals.

[4] Standard and Poor, *Telephone Industry Survey*, April 28, 1966, pp. T10 and T11.

[5] *The New York Times*, May 28, 1966, p. 24.

The financial problem of the telephone industry is one of raising large amounts of money for fixed capital rather than frequent amounts of working capital. Financing has been secured from sale of stocks and bonds and from earnings. Larger amounts of stocks have been sold to the public by the A.T. & T. than by any other company. During the postwar period, the Bell System accounted for 10 per cent of all monies raised by U.S. corporations, in terms of sales of stocks and bonds.[6]

Diversity of Demand. One important demand characteristic of the telephone industry is that consumers demand instantaneous and uninterrupted service, but at the same time their demands for service differ considerably throughout the day. (Figure 1) The demand for service during the hours 9 a.m. to 6 p.m. is more than double that for the hours 7 p.m. to 12 a.m. On the other hand, during the midnight hours 1 a.m. to 6 a.m. demand for service is comparatively negligible.

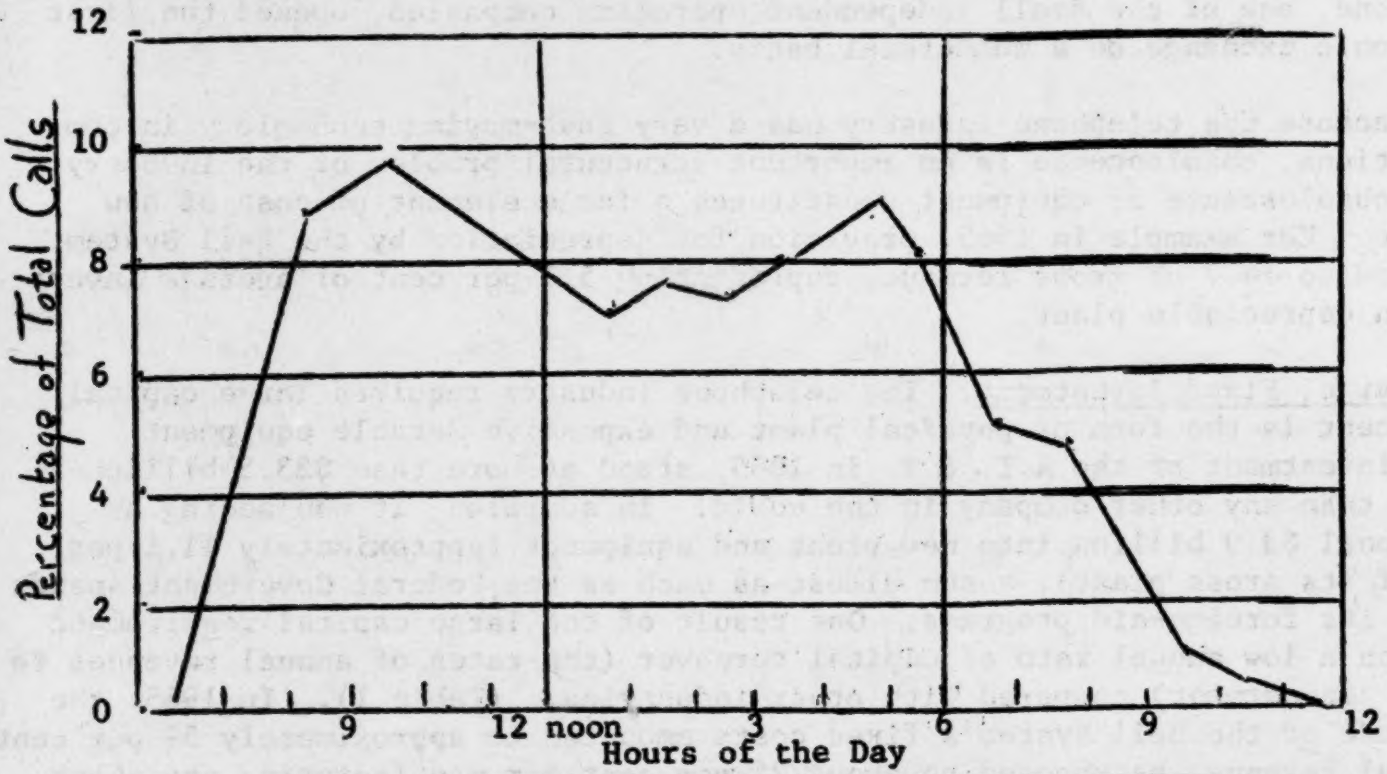

Fig. 1. DAILY LOAD CURVE OF A TELEPHONE UTILITY
Distribution of calls during day

In contrast to the sale of a commodity that can be produced and stored before it is distributed and consumed, the telephone industry sells a service which must be consumed as it is produced. Because of the nonstorability as well as monopoly of supply, the telephone industry must have adequate plant to satisfy the instant and continuous demand of customers during peak periods of the day.

Wide fluctuations of demand during the day influences the structure of the industry in two important ways: (1) it creates the problem of large, unused capacity except for periods of peak demand and (2) it aggravates the need for large fixed capital investment, since capital equipment must be sufficient to meet peak load needs. The need to utilize plant as fully as possible, and

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[6] Standard and Poor, Telephone Industry Survey, April 28, 1966, p. T13.

TABLE 1

INVESTMENT IN FIXED PLANT REQUIRED TO PRODUCE $1.00 OF NET SALES PER YEAR, VARIOUS INDUSTRIES, 1940*

Utility Industries	
Class-1 railroads	$6.13
Electric	5.80
Manufactured gas	4.63
Urban transportation	4.57
Natural gas	4.31
Mixed gas	4.08
Bell telephone system	4.06
Telegraph	3.38
Greyhound bus	1.40
Air lines	.87
Other Industries	
Anthracite and bituminous coal	2.70
Petroleum	2.50
Non-ferrous metals	1.90
Railway equipment	1.88
Iron and steel products	1.66
Chemical manufacturing	1.15
Tires and rubber goods	.72
Electrical equipment	.49
Farm Equipment and implements	.45
Automobiles and parts	.37
Aircraft parts	.35
Retail stores	.32
Meat packing	.25

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* Ernest R. Abrams, "The Product of the Dollar in Various Types of Business." 35 Pub. Util. Fort. 795 (June 21, 1945)

thereby reduce overhead costs makes price discrimination highly attractive to the telephone industry.[7]

Elasticity of Demand. For most people, the telephone is considered a necessity. Even if rates should go up or if a business recession occurs, telephone customers are likely to cut expenditures on other goods and services before reducing their outlays for telephone services. Consequently, demand for basic telephone service is relatively inelastic both with respect to changes in telephone rates and personal income.

Studies have been made of the income sensitivity of the telephone industry to dollar sales as compared with other utilities and industries. (Figures 2 and 3) Figure 2 shows that with the exception of the electric and gas utilities, the telephone industry is less adversely affected by changes in income than all other industries. This is true for both residential and business usage of the telephone; demand for service by both buyers and users is only moderately affected by fluctuations in general business activity. Residential subscribers, who hold approximately 70 per cent of the telephones in service, have become too accustomed to the telephone to consider the service a luxury. Commercial and industrial usage of the telephone also does not decline appreciably unless curtailment in business becomes severe. During the mild post war recession in 1948-49, 1953-54, 1957-58, and 1960-61, the telephone industry showed itself relatively immune to cyclical declines in business activity. The growth trend in revenue and net income continued to mount during each of these recession periods.

Nevertheless, Figure 3 shows that demand for long distance service is more sensitive to income and price change than is demand for local service. The long distance service shows considerable variations in revenue over the business cycle, while local service sales are comparatively stable. Long distance revenues also show greater sensitivity to rate changes than local revenues. For example, there have been three major rate reductions in long-distance calls since 1959 and in each case the volume of long-distance rates increased markedly following the reduction of rates. In fact, the $100 million long-distance rate reduction in 1965 was followed by a 12 per cent increase in long-distance messages over 1964. On the other hand, local service rates have climbed steadily upward in recent years, but because of an inelastic demand for such service, local revenues have not declined significantly.[8]

Demand Growth. The telephone industry has been one of the outstanding growth areas of the American economy. In the 1954-64 decade, this growth has been considerably more rapid than that of the economy as a whole as shown in Table 2 below:

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[7] This will be discussed more fully in Part III, under Structure of Rates.

[8] Growth in demand for telephone service may also be a contributing factor.

TABLE 2

COMPOUND ANNUAL GROWTH RATES, 1954-1964.

Category	Percentage Growth
Economy as a whole	
Population	1.7
Gross National Product (Constant Dollars)	3.6
FRB Index of Industrial Production	4.4
Corporate Earnings	6.2
Telephone Industry	
Operating Revenues	8.3
Plant Investment	9.2
Number of Telephones	5.3
Daily Conversations	5.5
Net Income	11.9

Source: Clark, Dodge & Co., Industry Review Service, March 15, 1966, p. 2.

The underlying factor for this rapid growth has been an expanding population, the growing propensity of individuals to communicate with each other, the geographical dispersion of U.S. industry, the increasing mobility of people, and the great emphasis on research and development by the telephone industry. The expanding affluence of society has also contributed to the growth of industry in recent years. For example, the rise in personal income has resulted in the number of residential extension phones more than tripling in the past twelve years to 15 million at present.

Although growth of the Bell System has been short of spectacular in the past two decases,[9] (Table 3), the independent telephone companies, on the whole, have fared relatively better than the Bell companies, as shown in Table 4. In part, this reflects the fact that the independent companies operate largely in suburban and rural areas, which have experienced a higher rate of growth than the urban areas, where the Bell System is dominant. It is also indicative of the fact that most of the independents have lagged behind the Bell System in providing the most modern equipment

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[9] Bell System telephones have increased nearly 3½ times, and long-distance conversations more than 4½ times.

TABLE 4

COMPARATIVE ANNUAL COMPOUND GROWTH RATES OF THE INDEPENDENTS AND THE BELL SYSTEM, 1954-64 AND 1959-64

	Compound Annual Growth Rates			
	Bell System		Independents	
Category	1954-64	1959-64	1954-64	1959-64
Number of telephones	5.2%	4.5%	6.0%	5.8%
Average daily conversations	5.1	4.7	7.1	6.5
Plant investment	8.7	7.9	13.1	11.7
Operating revenue	8.0	6.9	11.0	10.6
Net Income	11.7	8.3	13.1	13.3

Source: Clark, Dodge & Co., Industry Review Service, March 15, 1966.

and techniques. During the "catching" process, independent growth has been and probably will remain faster than that of the Bell System.

The telephone industry has reached a relatively high saturation of telephones in this country. Presently, there are about 50 telephones per 100 population in the nation. As recently as 1957, this figure was 37 per 100. Industry forecasts to 1970 indicate the proportion rising to nearly 60 per 100, reaching 120 million phones in service. By the year 2,000, it is anticipated there will be more telephones than people.

The Bell System has been approaching a saturation rate faster than the telephone industry as a whole. It is now serving 85 per cent of all households in the area where it operates as compared with 50 per cent for the industry as a whole. This means that in the near future, the A.T. & T's basic market--"the telephone business"--will be completely saturated. The executives of the A. T. & T. have been aware of the problem since the middle 1950's and have attempted to offset the potential slow-down in growth by expanding the telephone industry horizontally instead of vertically. As one A.T. & T official expresses it, "this means selling the U.S. corporations the idea that the telephone system can be used for far more than just telephone calls.[10]

Today the Bell telephone system no longer provides only the simple service of voice communication between two telephone instruments that characterized its operations in the past. Instead, it now provides such diverse telephone services as computer data, fascimile-photograph transmission, and television signals, in order to meet the growing need of fast, reliable, convenient, and accurate transmission of all forms of communication.[11] The fastest area of growth has been the field of data communications. For example, some 45,000 business data processing machines were connected by phone lines in 1965, compared with 15,000 in 1964. By 1970, the volume of data transmissions--"machine talk" is expected to equal or exceed that of "people talk." It is the expansion of the Bell System into the data processing applications which has brought them into direct competition with many of the communications carriers, notably Western Union.

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[10] Wall Street Journal, Dec. 16, 1965, p. 11.

In summary, although the year-to-year gains in telephone-instrument additions may be at a slower rate in the future,additional stimulation to growth through new services may well permit the industry to enjoy as rewarding a growth period in the next two decades as in previous ones. Aside from the present growing market for speedy flow of data, untapped markets exist for various new voice and fascimile service, regular airline-to-ground service, expanded mobile-unit use, and transmission of educational material for classroom television.

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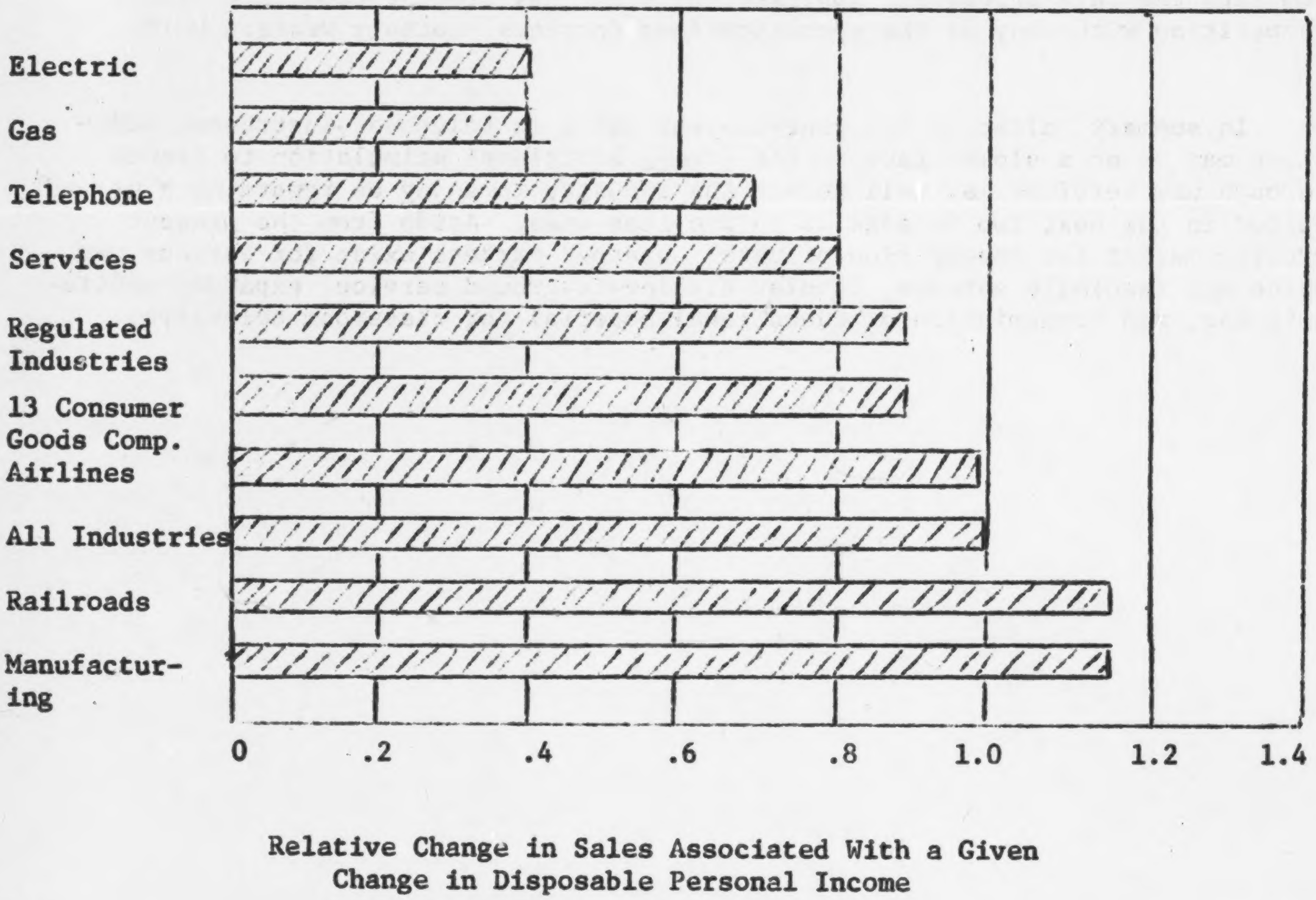
[11] For example, the A. T. & T. may provide a business with wide area telephone service (WATS) which would permit the firm to make an unlimited number of long-distance calls to a particular area at a fixed monthly charge; it may provide a business with a microwave communications system (TELEPAK) for bulk transmission of voice and written communication; it may lease a long distance "tre line" between cities; or it may provide teletypewriter exchanges service(TWX)..

FIGURE 2

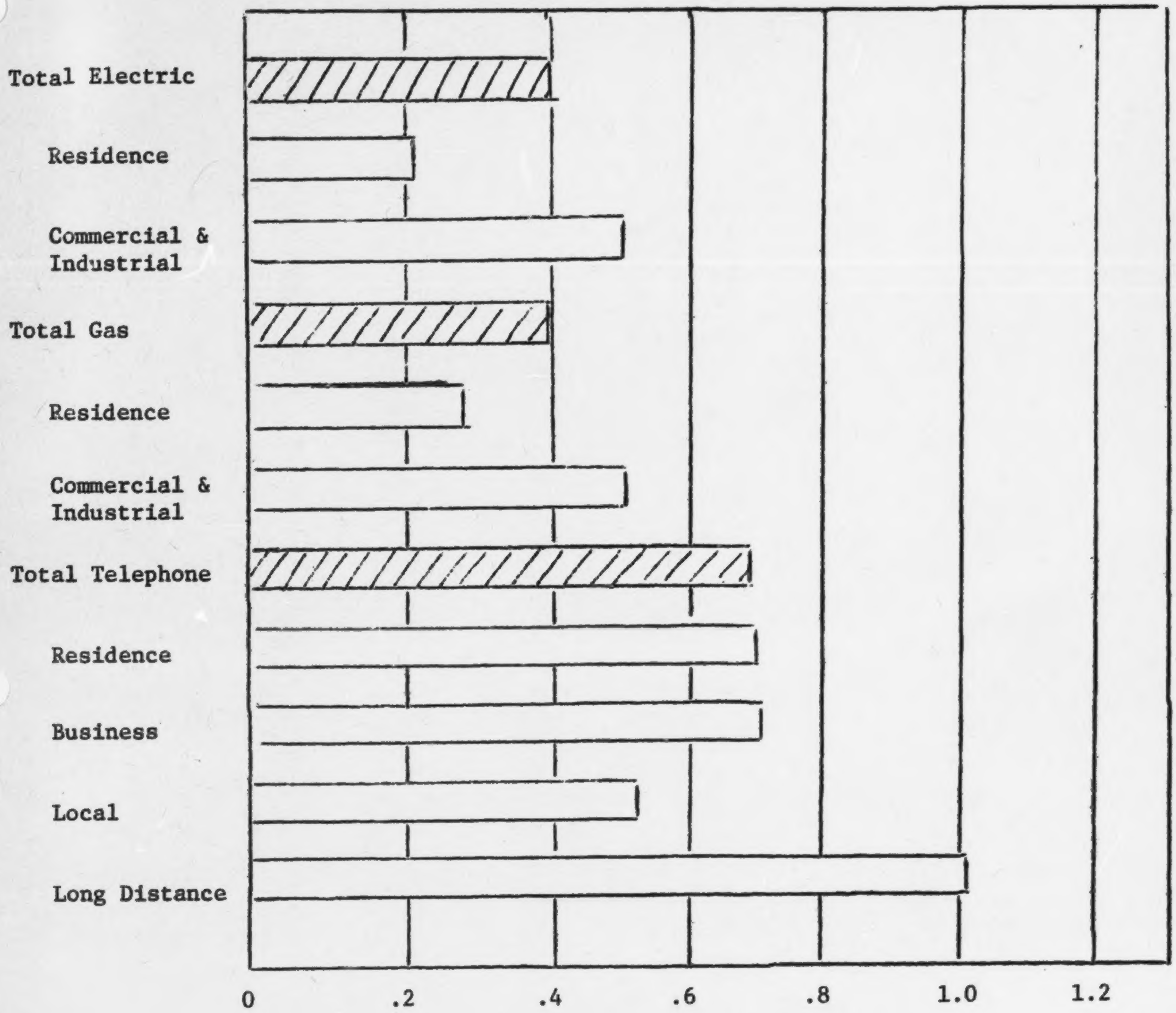
Income Sensitivity For Sales of Various Industries
(1929-1960 Average, Growth Trend Removed)



Source: Gerald W. Grepper, "Sensitivity of Corporate Sales to Income Changes," 26 Journal of Marketing 47, 51 (1962). Reprinted with permission from the Journal of Marketing, national quarterly publication of the American Marketing Association.

FIGURE 3

Income Sensitivity for Sales of the Nontransportation Utilities
(1929-1960 Average, Growth Trend Removed)



Relative Change in Sales Associated With a Given
Change in Disposable Personal Income

Source: Gerald W. Grepper, "Sensitivity of Corporate Sales To Income Changes," 26 Journal of Marketing 47, 51 (1962). Reprinted with permission from the Journal of Marketing, national quarterly publication of the American Marketing Association.